AKAI
professional

Roger Linn

ASQ10
MIDI SEQUENCER

Operator's Manual

ASQ10

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Operator's Manual

Software version 2.0

By Roger Linn

Warning

Power requirements

Power requirements for electrical equipment differ from area to area
The operating voltage of this machine is preset at the factory according
to its intended destination. However, some models are equipped with a
voltage selector If your machine is so equipped, before connecting,
check to see that the VOLTAGE SELECTOR on the rear panel is set to
the voltage for your area
If not please set it correctly before plugging in the power cord.
220V, 50Hz for Europe except UK
240V, 50Hz for UK and Australia
120V, 60Hz for U.S.A. and Canada

If the VOLTAGE SELECTOR is not set for your area:

Confirm that the power cord is disconnected
Move the VOLTAGE SELECTOR with a
screwdriver so that the marker is above
the voltage for your area.

```
┌─────────────────────────┐
│      VOLTAGE            │
│      SELECTOR          │
│                        │
│  220V ▯▮▯ 240V         │
└─────────────────────────┘
```
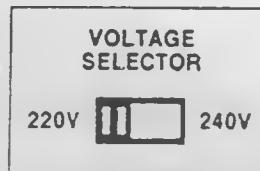
What you should know to protect yourself and the Akai ASQ10.

Watch out! You might get an electric shock.
● Never touch the plug with wet hands.
● Always pull out by the plug and never the cord
● Only let a qualified professional repair or reassemble the Akai
  ASQ10 An unauthorized person might touch the internal parts and
  receive a serious electric shock.
● Never allow a child to put anything, especially metal, into the Akai
  ASQ10.

Let's protect the Akai ASQ10 too.
● Use only a household AC power source. Never use a DC power
  source
● If water is spilled on the Akai ASQ10, disconnect the power and call
  your dealer.
● Make sure that the Akai ASQ10 is well ventilated and away from
  direct sunlight
● To avoid damage to the internal circuits and the external surface,
  keep away from heat (stoves. etc.)
● Avoid using spray type insecticide near the Akai ASQ10. It can
  damage the finish and might ignite suddenly
● To avoid damaging the finish, never use denaturated alcohol, paint
  thinner or other similar chemicals to clean the Akai ASQ10
● Place the Akai ASQ10 on a flat and solid surface.

To enjoy the Akai ASQ10 for a long time, please read this operator's
manual thoroughly
Should a problem persist, write down the model and serial numbers and
all pertinent data regarding warranty coverage as well as a clear
description of the existing trouble. Then, contact your nearest authorized
Akai Service Station, or the Service Department of Akai Electric
Company. Tokyo, Japan.

Precautions

FOR CUSTOMERS IN THE UK

IMPORTANT FOR YOUR SAFETY

The flex supplied with your machine will have two wires as shown in t
illustration.

TWO CORE FLEX IMPORTANT

The wires in this mains lead are coloured in
accordance with the following code:
    Blue: Neutral
    Brown. Live
As the colours of the wires in the mains lead of
this apparatus may not correspond with the
coloured markings indentifying the terminals
in your plug, proceed as follows: The wire
which is coloured blue must be connected to
the terminal which is marked with the letter N
or coloured black.
The wire which is coloured brown must be
connected to the terminal which is marked
with the letter L or coloured red.
*   Do not connect any wire to the larger pin marked E or ⏚ when wirir
    a plug Ensure that all terminals are securely tightened and that r
    loose strands of wire exist
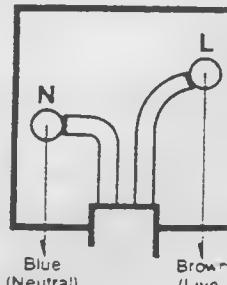
Warning — This equipment generates and uses radio frequency
energy and if not installed and used properly, that is, in stric
accordance with the manufacture's instructions, may cause interfer-
ence to radio and television reception. It has been type tested and
found to comply with the limits for a Class B computing device in
accordance with the specifications in Subpart J of Part 15 FCC Rules
which are designed to provide reasonable protection against such
interference in a residential installation. However, there is no guarantee
that interference will not occur in a particular installation. If this
equipment dose cause interference to radio or television reception
which can be determined by turning the equipment off and on, the user
is encouraged to try to correct the interfrence by one or more of the
following measures.

    Reorient the receiving antenna
    Relocate the computer with respect to the receiver
    Move the computer away from the receiver
    Plug the computer into a different outleet so that computer and
    receiver are on different branch circuits

It necessary, the user should consult the dealer or an experienced
radio/television technician for additional suggestions
The user may find the following booklet prepared by the Federal
Communications Commission helpful:
    "How to Identify and Resolve Radio-TV Interference Problems"
    This booklet is available from the U S Government Printing Office.
Washington, DC 20402, Stock No. 004-000-00345-4.

DANGER -Improper connection of the equipmentgrounding onducter can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded.
Do not modify the plug provided with the product -if it will not fit the outlet. have a proper outlet installed by a qualified electrician."

You can take no notice of these as above. if you have a another power-supply coad without grounded terminal.

WARNING

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS

1 Read all the instructions befor using the product

2. To reduce the risk of injury. close supervision is necessary when a product is used near children

3 Do not use this product near water - for example. near a bathtub. washbowl. kitchen sink. in a wet basement. or near a swimming pool. or the like.

4. This product should be used only with a cart or stand that is recommended by the manufacturer.

5. This product. either alone or in combination with an amplifier and headphones or speakers. may be capable of producing sound levels that could cause permanent hearing loss.
Do not oparate for a long period of time at a high volume level or at a level that is uncomfortabel.
If you experience any hearing loss or ringing in the ears. you should consult an audiologist.

6. The product should be located so that its location or position does not interfere with its proper venttilation.

7. The product should be located away from heat sources such as radiators. heat registers. or other products that produce heat.

8. The product should be connected to a powar supply only of the type described in the operating instructions or as marked on the product.

9. This product may be equipped with a polarized line plug(one blade wider than the other).
This is a safety feature.
If you are unable to insert the plug into the outlet. contact an electrician to replace your obsolete outlet
Do not defeat the safety purpose of the plug.

10. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.

11. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

12. The product should be serviced by qualified service personnel when.

A. The power-supply cord of the plug has been damaged. or

B. Objects have fallen. or liquid has been spilled into the product: or

C. The product has been exposed to rain: or

D. The product does not appear to operate normally or exhibits a marked change in performance: or

E. The product has been dropped. or the enclosure damaged.

13. Do not attempt to service the product beyond that described in the user-maintenance instructions.
All other servicing should be referred to qualified service personnel

SAVE THESE INSTRUCTIONS

Table of contents

ASQ10   AKAI MIDI SEQUENCER
SPECIFICATION SHEET

GENERAL:

320 characters LCD display with graphics
Disk drive: 3.5" 2DD (793K bytes formatted capacity)
Computer: 80186 (10MHz)
Note: 60.000 (512K bytes)
Timing resolution: 96 divisions per 1/4 note
Sequences: 99
Track per sequence: 99
Output MIDI channels: 16
Record mode: Record. Overdub
Song mode: 20 songs. 256 steps per song
Sync modes: SMPTE. MIDI Time Code. MIDI clock. MIDI Song Position Pointer FSK24.
            Pulse96. 1/4 note clicks
Dimensions: 344(W)×393(D)×131(H)mm
Weight: 6.5kg
Power consumed: AC100V(50 60Hz) 14.5W. AC120V(60Hz) 17W
                AC220V(50Hz). AC240V(50Hz) 20W

REAR PANEL INPUTS/OUTPUTS

MIDI inputs: 2
MIDI outputs: 4(independent)
Foot switch inputs: 2
Sync input and sync input level control
Sync input level: 0.5~1 Vp-p
Sync output: 1
Sync output level: 1 Vp-p. Imp.220 ohms
Metro output(clicks): 1
RS-232C computer port: 1

* For improvement purposes. specifications and design are subject to change without notice.

1.2 How to use this manual

The ASQ10 and this manual were designed for people who don't like reading manuals and want to start working immediately.

The manual teaches the ASQ10's operation in a logical, step-by-step manner. The sections are presented in the order that most people want to learn them. To start using your ASQ10 as soon as possible, we recommend that you first read (or skim) through sections 2 and 3, "The Basics" and "Recording sequences", to get a general understanding of the ASQ10. After that, you will find that most other functions are very easy to figure out by experimentation:

1. Press the key which you think would most likely contain the function you are looking for. For example, to save a sequence, press the DISK key.
2. Follow the instructions presented on screen. If you're confused, press and hold the HELP key for further explanation.
3. If you still can't figure it out, find the section in the manual which explains that function, either by looking in the table of contents or the index.

Section 2:
The Basics

2.1 Overview

This section is a simple introduction to operating the ASQ10. In this section you will learn to:

- Hook up the ASQ10 to your system.
- Enter and change data and parameters using the CURSOR keys, the NUMERIC KEYPAD, the DATA CONTROL, and the +/- keys
- Use the SOFTKEYS and the HELP key

and a few other basic functions

2.2 Hooking up your system and turning it on:

Here's how to hook up your ASQ10 to your system:

Method 1: To use the ASQ10 with a single integrated keyboard synthesizer:

1. Connect the synthesizer's MIDI OUT to the ASQ10's MIDI IN 1. You may alternatively use MIDI IN 2. Both inputs merge together.
2. Connect the ASQ10's MIDI OUT 1 to the MIDI INPUT of the synthesizer.

Method 2: To use the ASQ10 with a midi master keyboard and one or more separate midi sound modules:

1. Connect the MIDI OUT of the midi keyboard to the MIDI IN 1 of the ASQ10. You may alternatively use MIDI IN 2. Both inputs merge together.
2. Connect the MIDI OUT 1 of the ASQ10 to the MIDI INPUT of the first midi sound module.
3. Connect the MIDI THRU of the first sound module to the MIDI INPUT of the second sound module.
4. Connect the MIDI THRU of the 2nd sound module to the MIDI INPUT of the third sound module, and continue this until all sound modules are connected.

The above hookup only uses one of the four midi output jacks of the ASQ10. Later in the manual, you'll learn how to use all four of the midi output jacks.

To use the foot switches or the sync input/output, please read the corresponding sections of the manual.

Note: The RS-232C computer port currently has no function.

Turning the ASQ10 on

Once the ASQ10 is hooked up, turn the power switch on and the following words will appear on the LCD display:

```
============== Play/Record ==============
Sqnc: 1-(unused)          Tmpo:120.0 BPM
TSig: 4/ 4    Bars:  2    Loop:TO BAR  1
============== Track data ===============
Trak: 1-(unused)          Ch: 1A-SYNTH01
Vol%:100      Prog:   0   Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

This is the PLAY/RECORD screen. It is the main operating mode of the ASQ10 and all playing and recording of sequences is done while this screen is displayed. This screen will be discussed further in the section entitled "Recording sequences". If at any time while operating the ASQ10 you are confused and want to return to this mode, press the MAIN SCREEN key.

NOTE: Before the PLAY/RECORD screen appears, the following temporary screen will show for approximately 1/2 second:

```
============== Akai ASQ10 ===============


      Copyright 1987, 1988
      AKAI ELECTRIC CO., LTD.
           Version 2.0


Loading files...
```

This screen appears while the ASQ10 is looking to see if a file called SYSTEM.ALL exists on the currently inserted disk. (See section 6.5.1, "Files which automatically load on power-up".) If so, this screen will remain until the file has finished loading. If no such file exists, the PLAY/RECORD screen appears after only 1/2 second.

This temporary screen provides one useful piece of information— it gives the version number of the software inside the ASQ10. If the version number is a lower number than 2.0, your ASQ10 is running an older software version. If so, you should update your ASQ10 to version 2.0. To update your ASQ10, contact your dealer or service center and say "I want to have the latest software update installed in my ASQ10".

2.3 The CURSOR keys

While the PLAY/RECORD screen is showing, notice that a small
rectangular block is blinking near the upper left corner. This is
called the CURSOR. It is possible to move the cursor around the
screen using the four direction keys in the CURSOR section of the
panel. Try doing this, then return the cursor to the upper left corner
where it was.

Notice that the cursor does not move from letter to letter, but rather
jumps across many letters at a time, landing only in certain
locations, usually to the right of a colon (":"). These areas are
called DATA FIELDS and each one controls a specific parameter.
For example, the upper leftmost data field is called SQNC, an
abbreviation for "sequence". To the right of this field is another
field containing the name for the selected sequence number,
followed by the TMPO field, an abbreviation for "tempo".

The PLAY/RECORD screen is one of many screens available on the
ASQ10. Each of the panel keys presents at least one unique screen,
and each screen has its own unique data fields. Try pressing a few
of the different keys in the COMMANDS section of the panel such as
SYNC or TEMPO. When you're finished, press MAIN SCREEN to
return to the PLAY/RECORD screen.

2.4 The NUMERIC KEYPAD, DATA CONTROL and +/- keys

The NUMERIC KEYPAD

To change the data in a field, move the cursor to it and type in the new number using the numeric keypad, followed by ENTER. For example, to change to sequence number 2:

>   1. Move the cursor to the SQNC field;
>   2. Type 2, followed by ENTER.

Notice that the sequence name (located immediately to the right of the sequence number) now automatically changes, because it must now display the name of sequence 2. Try changing the playing tempo in the same way (move the cursor to the TMPO field).

Another use of the numeric keypad is to select from a list of options presented on-screen. For example, pressing the DISK key causes the following screen to be displayed:

```
=============== Save/load ==============
1)Save a sequence   2)Save all seqs/songs
3)Save parameters   4)Load/erase/rename
5)Format disk       6)Copy a disk



Select option:
```
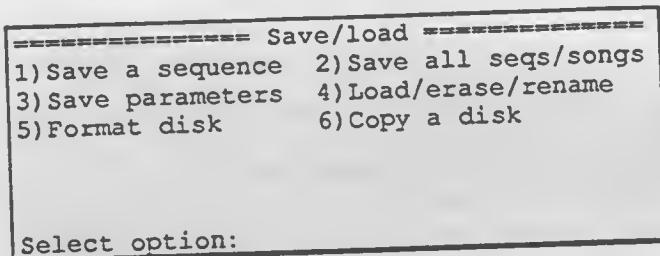
If a screen like this is displayed, you are expected to select one of the options by pressing a single number — it is not necessary to press ENTER afterwards.

The DATA CONTROL

Another way of changing on-screen data is to use the DATA CONTROL. While the cursor is in a data field, if the DATA CONTROL is rotated one "step" to the right (as you turn the knob, you can "feel" the steps), the on-screen number will increment by 1. If the DATA CONTROL is rotated one step to the left, the on-screen number will decrement by 1. Continuously turning the DATA CONTROL will repeatedly increment or decrement the on-screen value. It is not necessary to press ENTER after turning the data control.

There are certain data fields called "choice" fields. These fields do not contain numeric data, but rather a specific number of preset

selections, but only one may be active at a time. In this case, the DATA CONTROL is used to select from the available options. For example, press the OTHER key and move the cursor to the RATE field, which is a "choice" field. Now turn the DATA CONTROL and notice that with each step of the control, a different preset option appears.

The + and - keys

Pressing the "+" key has the same effect as turning the DATA CONTROL one step to the right. It either increments a number in a numeric field or chooses a new option in a "choice" field.

Pressing the "-" key has the same effect as turning the DATA CONTROL one step to the left. It either decrements a number in a numeric field or chooses a new option in a "choice" field.

2.5 The SOFT KEYS (1 - 4)

In the upper right corner of the front panel are four buttons labeled
SOFT KEY 1, SOFT KEY 2, SOFT KEY 3 and SOFT KEY 4. The
functions of these buttons change from one screen to another and are
always displayed on the lowest line of the screen. For example,
while the PLAY/RECORD screen is showing, notice the lowest line:

```
=============== Play/Record =============
Sqnc: 1-(unused)        Tmpo:120.0 BPM
TSig: 4/ 4   Bars:  2   Loop:TO BAR  1
=============== Track data ==============
Trak: 1-(unused)        Ch: 1A-SYNTH01
Vol%:100     Prog:  0   Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

There are four titles enclosed in angle brackets ("<" and ">"). The
titles are <Trak=ON >, <Solo=OFF>, <Tmpo=MAS> and
<SortTrks>. These four titles indicate the functions of the four
SOFT KEYS, but only while this screen is showing. Each of the
many functions in the ASQ10 displays a unique screen of data, and
the lowest line of each of these screens indicates the function of the 4
soft keys while that screen is showing. Demonstrate this by pressing
the ERASE key, then the TIMING CORRECT key, then MAIN
SCREEN to return to the PLAY/RECORD screen. Some screens
have less than 4 active soft keys and some have none.

2.6 The HELP key

Whenever this key is pressed and held down, the contents of the screen will be temporarily replaced with a paragraph of further explanation about the function you are currently working with. To return to the previous screen, release the HELP key. There is a different help screen for every data field in every screen in the ASQ10. To demonstrate this:

1. Press HELP, notice the screen, then release it;
2. Move the cursor to a different field;
3. Press HELP again, notice the different screen and release it.

2.7 The MAIN SCREEN key— how to exit any function

Pressing the MAIN SCREEN key at almost any time will return you back to the main PLAY/RECORD screen of the ASQ10 without damaging any data. Use this key as a "panic" button - if you find yourself in some function you don't understand and want to get out.

2.8 The RESET TO DEFAULTS function

The contents of most of the data fields in each of the screens in the
ASQ10 are retained after the power is turned off and on again. Even
though all sounds and sequences are lost when power is removed,
these settings are retained by a special battery powered memory.
Because of this, there is no need to reset the ASQ10's settings to your
personal taste every time you power on.

However, there are times when it is desirable to reset all of these
settings to their original factory-preset settings. There is a special
function called "Reset to defaults" which does exactly this. To
perform a reset to defaults:

1. Press the OTHER key, and this screen will appear:

```
=============== Metronome ================
Volume:14    Rate:1/4 NOTE    In play:YES
============= Foot switches =============
Foot1:ERASE         Foot2:TIMING CORECT
================ Other =================
Free sequence memory%:100

<Defaults><Record 16 chs>
```

2. Press SOFT KEY 1, <Defaults>.

3. A second screen will appear, asking you if you are sure you want
to reset to defaults. Press SOFT KEY 1 again, <Reset to defaults>.

Now, all data fields will be reset to their factory-preset status.

NOTE: These settings which are retained with power removed may
be saved in a special file called a "Parameter file". See the DISK
section of the manual to learn more about this feature.
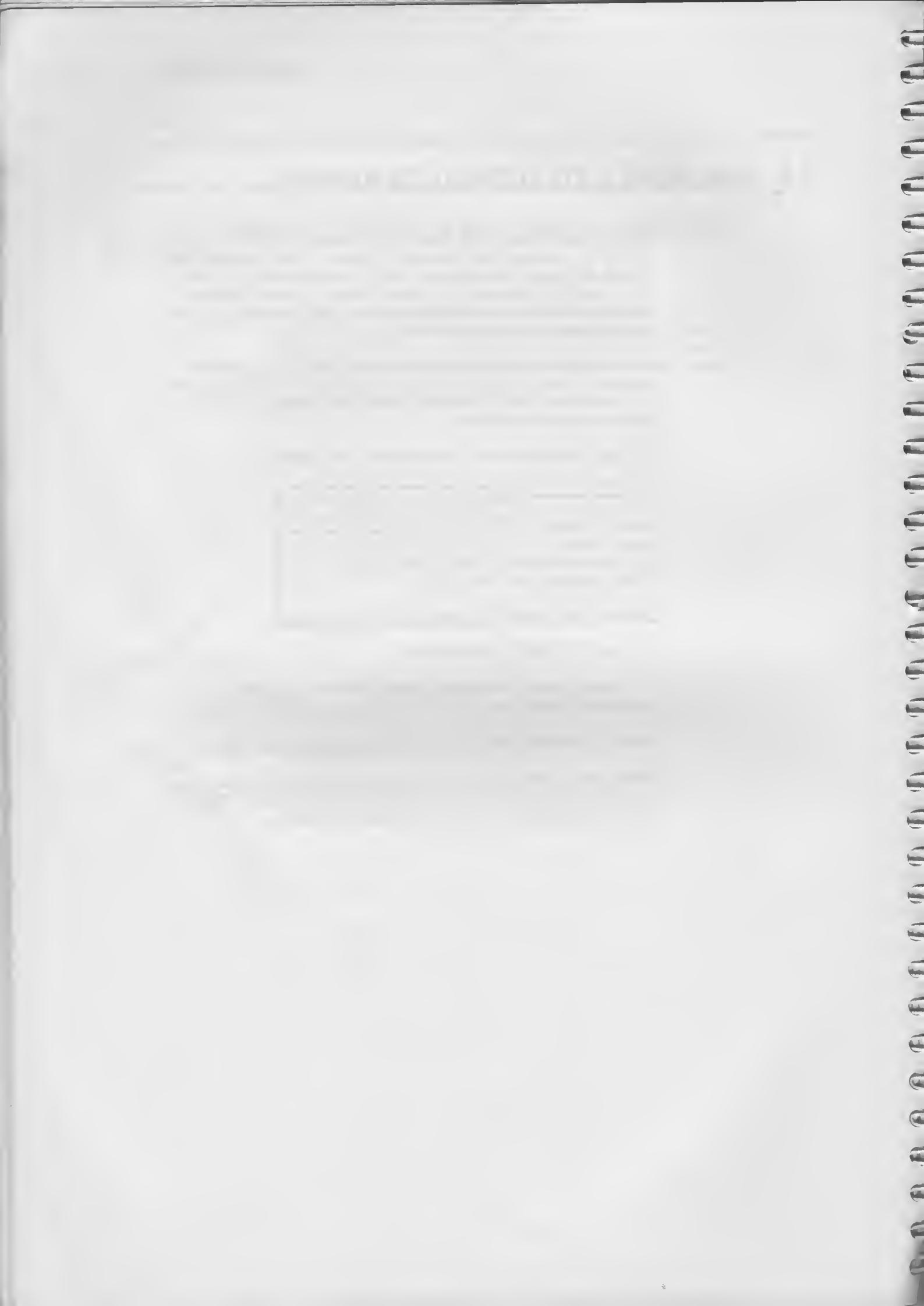
Section 3:
Recording
Sequences

3.1 Overview

This section describes functions which are used in the process of recording sequences. In this section you will learn:

• How to use the PLAY/RECORD screen
• The keys in the PLAY/RECORD section of the panel
• How to record sequences
• How to use the TIMING CORRECT function
• The TEMPO function
• The WAIT FOR KEY and AUTO PUNCH keys
• How to use the recording metronome
• How to use the foot switches
• How to see how much memory is available for new sequence recording
• How to change sequences while playing
• How to record Midi system exclusive data
• How to transfer sequences to and from other sequencers

3.2 How sequences, tracks and channels are organized

Sequences:

The ASQ10 holds 99 sequences in memory at one time. A sequence can be thought of as a segment of multi-track tape of variable length. Depending on the sequence contents, it could be a 2 bar repeating bass pattern, an eight bar verse, or a 200 bar song with time signature and tempo changes. Normally, only one sequence may play at one time, unless the 2ND SEQUENCE feature is on, allowing 2 sequences to play simultaneously.

A sequence has a format consisting of time signature and number of bars. If no format is assigned to a sequence, it is automatically given a time signature of two bars of 4/4. However, this default setting may be changed by pressing the EDIT key, then selecting option 2: CREATE SEQUENCE.

Tracks:

Within each of the 99 sequences are 99 tracks, which contain the actual midi events. These may be thought of as the tracks on a multi-track tape recorder — they each contain a specific instrument or piece of the total arrangement, but all play simultaneously. For example, track 1 could be drums, track 2 percussion, track 3 bass guitar, track 4 piano, track 5 horns, track 6 more horns, etc. Each track may be either a "drums" track or a "non-drums" track, but not both. This is explained further in the section "How to assign drums and non-drums tracks".

Channels:

In order for the sequencer to play external synthesizers, it must send its notes out through midi on one of the 64 midi output channels (16 channels for each of the 4 midi output jacks). On the ASQ10, each track may be independently assigned to output its notes through any one of these 64 output midi channels. It is also possible to send the output of any track through two midi output channels simultaneously.

Exactly how tracks and channels are assigned is explained next in the section entitled "The PLAY/RECORD screen - the main operating mode of the ASQ10".

3.3 The PLAY/RECORD screen - the main operating mode of the ASQ10

When the ASQ10 is first powered on, the following screen appears:

```
=============== Play/Record ==============
Sqnc: 1-(unused)        Tmpo:120.0 BPM
TSig: 4/ 4    Bars:  2  Loop:TO BAR  1
=============== Track data ===============
Trak: 1-(unused)        Ch: 1A-SYNTH01
Vol%:100     Prog:  0   Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) =====
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

At this point, the device is in its standard operating mode, , in which all recording and playing of sequences is done. On this screen are presented many data fields useful to the process of real-time recording. A detailed description of each of the fields and soft keys follows:

• The title "============= Play/Record ===============":
This is not actually a field, but rather the title of this screen. Sometimes, however, this title line will appear slightly different:

"====== Play/Record (Record ready) ======"

If this message appears, it means that the currently selected sequence is ready to be recorded into. If the "(Record ready)" message is not displayed and you want to record into the current sequence, press either the RECORD or OVERDUB keys once, and the "(Record ready)" indicator will be added to the title line, indicating that the current sequence is ready to be recorded into.

• The SQNC field:
This field displays the active sequence number, from 1 to 99. This is the sequence which will play when either the PLAY or PLAY START key is pressed. The ASQ10 holds up to 99 sequences in memory at one time.

• The "sequence name" field:
This is the 16 character name for the current sequence. This field has no on-screen title, but is located directly to the right of the SQNC field. To change the sequence name, move the cursor to this field and turn the DATA CONTROL one step in either direction. This will cause the keys which have the alphabetic letters printed next to them to change to their alpha functions. To indicate that this alpha mode is active, the cursor changes from the normal blinking block to a blinking underline. Now the name may be changed by typing

the desired letters and moving the cursor using the CURSOR LEFT
and CURSOR RIGHT keys. In addition to the letters available by
typing the letter keys, 12 additional punctuation characters are
available by turning the DATA CONTROL. When finished, press
ENTER and the cursor will return to a blinking block at the
beginning of the field.

NOTE: If the DATA CONTROL is not turned while the cursor is in
this field, moving the cursor one position to the left or right will
move to the previous or next data field - not the adjacent character
position within the sequence name.

If no sequence data exists, the name is always "(Unused)". Once
any data is recorded into the sequence, the name defaults to
"SEQXX" with "XX" being the number of the sequence.

• The TMPO field:
This is the playing tempo. Additional tempo parameters are
available by pressing the TEMPO key.

• The BPM field (Tempo display method):
This right half of the tempo field is actually a separate field. This
field indicates the tempo display method. One of two options may be
selected: BPM (Beats Per Minute) or FPB (Frames Per Beat). If set to
FPB, the fractional portion of the tempo field denotes 1/8s instead of
1/10s, as in Beats per minute.

• The TSIG field (Time signature):
This field shows the time signature of the current bar of the active
sequence. It is for display only and cannot be changed. To change
the time signature of a bar or to insert time signature changes, read
the section of the manual entitled "Editing sequences".

• The BARS field:
This shows shows the total number of bars in the active sequence. It
is for display only and cannot be changed.

• The LOOP field:
This is a choice field and has two options:

> 1. OFF:
> If this option is selected, the sequence stops playing when it
> reaches its end. However, if in RECORD mode, recording
> continues past the end, adding one measure (at the time
> signature of the previous bar) onto the end of the sequence as
> each new bar is entered, until the sequence is stopped.

> 2. LOOP TO BAR 1:
> If this option is selected, when the sequence plays to the end,
> it immediately loops back to the bar number displayed to the
> right of the word BAR. To set the number of the bar which the

sequence loops back to, move the cursor to the field to the right of the word BAR and enter the new number.

NOTE: If the bar to loop to is 1 and the sequence is in RECORD mode, the ASQ10 will automatically switch from RECORD to OVERDUB mode at the moment the sequence loops back— this will prevent accidental erasure of any notes just recorded. In the event that the "loop to" bar is 2 or higher and the sequence is in RECORD or OVERDUB modes, the ASQ10 will automatically switch to PLAY mode at the moment the sequence loops back to the specified bar.

The "Track data" area (lines 5 and 6):

• The TRAK field:
This field displays the active track within the sequence. The active track is the track which, when record or overdub mode is entered, will be recorded into. Only one track may be active at a time.

• The "track name" field:
This field has no on-screen title, but is the 16 character name of the active track, located directly to the right of the active track number. It is changed in exactly the same manner as the sequence name above. If no track data exists, the name is always "(unused)". Once any data is recorded into the track, the name defaults to "TRKXX" with "XX" being the number of the track.

• The CH field (line 5)
This field specifies which of the midi channels the active track will send its output through. There are 64 possible channels — 16 on each of the 4 midi output jacks. To select the channel number (1 - 16), move the cursor to the numeric field directly to the right of the word "CH". To select which of the 4 output midi jacks the track will play through, move the cursor one additional position to the right of the channel number. This is a choice field with 4 options: A, B, C, and D, corresponding to midi output jacks 1, 2, 3, and 4, and can be changed by using the DATA CONTROL. For example, to assign the active track to play through midi channel 5 on output jack 3, select 5C in these fields.

NOTE: If you are using the special "drums track" feature of the ASQ10, you would assign a track as a "drums" track by setting the CH field to either 16A, B, C, or D (16 is normally the "drums" channel, although this may be changed). For more information on "drums" and "non-drums" tracks, see section 9.2: "How to assign "drums" and "non-drums" tracks".

• The "midi channel name" field (right side of line 5):
This is the 8 character name for the currently selected midi output channel. This field has no on-screen title, but is located directly to the right of the CH field. This would commonly contain the name of

the synthesizer which is being played from the displayed midi
channel, for Example, "S900_#2". There are 64 names — one for
each of the 64 output midi channels. If the selected midi channel is
assigned to the internal "drums" channels (16A, B, C, or D), the
assigned name for that channel is always "Drums" to indicate that
the selected track will play the internal drums.

NOTE: These 64 names are intended to be used is to identify the
midi devices which are externally connected — not the data
contained in the track . For this reason, they are not saved within
sequence files or "ALL" files. They are, however, retained in
memory after power is removed and are also saved within
"parameter" files.

• The CH field (line 6):
This field allows a second midi output channel to be assigned to the
active track in addition to the one displayed in the upper CH field, so
that the active track may play into 2 midi channels simultaneously.
If an additional output channel is not desired, a "0" should be
entered here to indicate that no additional midi channel is
assigned.

• The "midi channel name" field (right side of line 6):
This field, located directly to the right of the lower CH field, has the
same function as the upper midi channel name field, directly above,
but in this case is used to display the assigned name of the midi
channel selected in the lower CH field (line 6). If a "0" has been
entered in the lower CH field, indicating that no additional midi
channel has been selected for the active track, the name "(Off)" will
be displayed here.

• The VOL% field:
This is an overall output volume control for active track. It actually
scales the velocities of all notes which play from the track. However,
unlike a normal volume control, this setting actual adjusts the
dynamics played. The range is from 0 to 200%. Select 100 for
normal velocity. It is also possible to adjust the velocity values for a
region of notes after recording. To learn more about this, read
section 4.3.10 "Changing the velocity or duration of a group of notes
after recording".

• The PROG field:
This field permits a midi program number (1-128) to be assigned to
the active track, which is sent out as a midi "program change" event
when the sequence is first selected, or at the beginning of each
sequence in song mode. To defeat this feature for the active track,
enter a "0" in this field.

• The NOW field
This field displays the current position within the sequence
simultaneously both in musical terms and as a SMPTE number.
The left side of this field shows the current position in musical

terms — as a 3 part number separated by decimal points. The first part is the bar number; the second is the "beat" number within the bar (the beat is equal to the denominator of the time signature); and the third is the "clock" number within the beat (there are 96 clocks to a quarter note). Bars and Beats start on 1; Clocks start on 0.

To the right of the above described BAR.BEAT.CLOCK number is another 4 part number, displayed in parentheses. This field displays the current position of the sequence as a function of elapsed time from the beginning of the sequence, in HOURS:MINUTES:SECONDS:FRAMES. However, the number displayed when the sequence is set to the start is not necessarily 00:00:00:00, but rather is equal to the number entered in the "Sequence Starts at SMPTE#" field in the SYNC screen.

These 2 fields cannot be changed by directly entering numbers — the cursor will not move to this field. This field is normally changed by using the <, >, <<, and >> keys, or the LOCATE function, described in another section. Also, these fields change in real time while the sequence plays. However, the rightmost part of each field — the "clocks" and "frames" parts — are replaced with 2 dashes ("--") while playing because they would otherwise change too quickly to be useful.

The 4 SOFT KEYS:

• SOFT KEY 1 — <Trak=ON >:
This soft key acts as a "mute on/off"wswitch for the active track. Pressing soft key 1 changes from <Trak=ON> to <Trak=OFF >, and pressing it again changes it back. When set to ON, the active track plays; when set to OFF, the track doesn't play.

• SOFT KEY 2 —<Solo=OFF>:
Pressing this soft key turns SOLO mode ON or OFF. If set to ON, only the active track is heard, as all other tracks are temporarily muted.

• SOFT KEY 3 — <Tmpo=MAS>:
Pressing this soft key alternates between the 2 tempo modes used in the ASQ10: MASTER ("MAS") and SEQUENCE ("SEQ"). These two tempo modes are explained in section 3.8.1, "The tempo screen". This is useful, for example, to quickly alternate between a normal play tempo and a slower tempo when recording.

• SOFT KEY 4 — <SortTrks>:
This function is used to rearrange the order of the tracks. Pressing this soft key displays the following screen:

```
============== Sort Tracks ==============
  Move track: 1-Track_Name_#1
Before track: 2-Track_Name_#2

(Tracks between those displayed above
 will be renumbered.)

<Execute>
```

This function operates by removing one track and inserting it
before another, which causes all tracks between to be re-numbered.
Many of these operations may be required to put the tracks in the
desired order. To perform this function, enter the track number to be
removed in the MOVE TRACK field; enter the track number you
want to insert the "moved" track before in the BEFORE TRACK
field, then press <Execute>, and the PLAY/RECORD screen will be
re-displayed.

3.4 The PLAY/RECORD keys

These ten keys operate similarly to the transport keys on a tape recorder, with some very useful additions:

• The PLAY START key:
This key causes the sequence to begin playing from the beginning.

• The PLAY key:
This key causes the sequence to begin playing from the current position within the sequence, displayed in the NOW field in the PLAY/RECORD screen.

• The STOP key:
This key causes the sequence to stop playing.

• The OVERDUB key:
This key, when held down while either PLAY or PLAY START is pressed, causes OVERDUB mode to be entered, in which new notes may be recorded onto the active track, but existing notes will not be erased. While OVERDUB mode is active, the light above the OVERDUB key goes on.

It is also possible to "punch in" into overdub mode while playing. To do this:

1. The top line of the PLAY/RECORD screen must display the words "Play/Record (Record ready)". This means that the sequence is ready to record. If the words "(Record ready)" do not appear in the title, simply press and release the RECORD or OVERDUB keys once while stopped.
2. While the sequence is playing, simultaneously press the OVERDUB and PLAY keys. Overdub mode is now active, indicated by the light above the OVERDUB key.

To "punch out" of OVERDUB mode, simply press the OVERDUB key once, and the light above the OVERDUB key will turn off.

NOTE: If OVERDUB mode is entered while the sequence is set to loop to a bar higher than bar 1, OVERDUB mode will automatically be turned off at the moment the sequence reaches the end and starts to loop.

• The RECORD key:
This key, when held down while either PLAY or PLAY START is pressed, causes RECORD mode to be entered, in which new notes may be recorded onto the active track while existing notes are

erased, just like a tape recorder. While RECORD mode is active, the light above the RECORD key goes on.

It is also possible to "punch in" into record mode while playing. To do this:

1. The top line of the PLAY/RECORD screen must display the words "Play/Record (Record ready)". This means that the sequence is ready to record. If the words "(Record ready)" do not appear in the title, simply press and release the RECORD or OVERDUB keys once while stopped.
2. While the sequence is playing, simultaneously press the RECORD and PLAY keys. Record mode is now active, indicated by the light above the RECORD key.

To "punch out" of RECORD mode, simply press the RECORD key once, and the light above the RECORD key will turn off.

Note: If RECORD mode is entered while the sequence is set to loop to bar 1 (or a portion of the sequence is looped with the EDIT LOOP function), RECORD mode automatically switches to OVERDUB mode at the moment the sequence reaches the end and starts to loop. This prevents accidently erasing any data which was recorded on the previous pass through the loop. If, however, RECORD mode is entered while the sequence is set to loop to a bar higher than bar 1, RECORD mode will automatically be turned off at the moment the sequence reaches the end and starts to loop.

NOTE: If an empty sequence is selected (the sequence name says "unused"), and either RECORD or OVERDUB is pressed, the sequence will instantly be created using the settings in the CREATE SEQUENCE screen. This function is normally accessed by pressing the EDIT key and selecting 2.

• The "<<" key:
This key causes the current position within the sequence to rewind to the beginning of the nearest earlier bar.

• The ">>" key:
This key causes the current position within the sequence to fast forward to the beginning of the nearest higher numbered bar.

• The "<" key
This key normally causes the current position within the sequence to rewind to the previous 1/16 note. However, the amount of movement is set by the NOTE VALUE field in the TIMING CORRECT screen, which is usually set to "1/16 NOTE". To change the amount of movement, simply change the setting in this data field.

• The ">" key
This key normally causes the current position within the sequence
to fast forward to the next 1/16 note. However, the amount of
movement is set by the NOTE VALUE field in the TIMING
CORRECT screen, which is usually set to "1/16 NOTE". To change
the amount of movement, simply change the setting in this data
field.

• The LOCATE key:
This key is used to instantly go to a specific position within the
active sequence. When pressed, it displays the following screen:

```
================ Locate ================
   Press Soft keys To Go To Markers:
        Marker A: 001.01.00
        Marker B: 001.01.00
        Marker C: 001.01.00

===== Now:001.01.00 (00:00:00:00) ======
<Goto'A'><Goto'B'><Goto'C'><Load'Now'>
```

There are three sequence position markers, labeled A, B and C.
Pressing soft key 1, 2 or 3 causes either marker A, B or C,
respectively, to be loaded into the NOW field, having the effect of
going to that location. Pressing SOFT KEY 4, <Load'Now'>, causes
the contents of the NOW field to be loaded into the marker field
currently containing the cursor. To load any of the three markers,
move the cursor to it and enter the desired bar numbers in the
format: "BAR.BEAT.CLOCK" (separated by ".", in the numeric
keypad). If you only want to enter the bar number, type it, followed
by ENTER, and the note and clock numbers will be automatically
reset.

3.5 An example of recording a simple one-track sequence

The ASQ10 is both a "linear" type sequencer and a "pattern oriented" sequencer. The following examples use short sequences with the loop function turned on, and are therefore examples of "pattern-oriented" recording. To record linearly, simply set the LOOP field (in the PLAY/RECORD screen) to "OFF". Then, the sequence length will automatically increase as you record past the existing end. See the description of the LOOP field to learn more about this.

The following is a step-by-step example of how to record a sequence:

1. Connect the MIDI OUTPUT of a midi keyboard to the MIDI IN 1 of the ASQ10. You may alternatively use input 2. Both inputs merge together.

2. Connect the ASQ10's MIDI OUT 1 to the MIDI INPUT of a synthesizer. Set that synthesizer to play a piano-like sound and set its midi receive channel to 1.

3. The PLAY/RECORD screen should be displayed. If not, press MAIN SCREEN.

4. Select one of the 99 sequences which is currently unused, indicated by the word "(unused)" in the sequence name field, located directly to the right of the sequence number. If no sequences currently exist in the ASQ10, select sequence number 1 by moving the cursor to the SQNC field and typing 1, followed by ENTER.

5. The upper line of the screen should display:

   "====== Play/Record (Record ready) ======"

   If not, press either the RECORD or OVERDUB keys once. This will make the current sequence ready for recording, and will automatically create 2 blank bars of 4/4 time signature, set to play in a loop.

6. The TRAK field should contain a 1. If not, move the cursor to the TRAK field and select 1 (ENTER). This selects track 1 to be recorded into.

7. The upper CH field (on line 5) should contain a 1A. If not, move the cursor to the upper CH field and select 1 (ENTER), then select "A" in the field directly to the right using the DATA CONTROL.

This selects midi channel 1A as the channel which track 1 will output its notes to.

8. If you play the midi keyboard now, the synthesizer should sound. If not, check the midi connections and re-check the previous steps. Also, check to see that the MIDI SOFT THRU field is properly set. This field selects whether or not the notes played on the midi keyboard are instantly routed to the active track's output midi channel. To set this field:

A) Press the MIDI key.
B) Move the cursor to the MIDI SOFT THRU field.
C) If you are using a single keyboard synthesizer (the keyboard and sound generator are together in one unit), this field should be set to "OFF". In this case, there is no need for incoming midi notes to be immediately sent out to the midi output jack because the synthesizer is already receiving notes directly from its keyboard. However, if you are using a midi master keyboard and separate synthesizer modules, set this field to "ON". This way, the notes played on the keyboard will automatically be routed to the midi output jack in real time to play the synthesizer modules.

9. While holding RECORD, press PLAY START. The RECORD and PLAY lights should go on, and the metronome will be heard through the internal speaker. The metronome will play on 1/4 notes, with a louder click at the start of each bar. Also, the NOW display will be constantly changing to reflect the current position within the sequence.

10. Start recording your sequence by playing the midi keyboard in time to the metronome. Because of this default format of 2 bars of 4/4 time signature in a loop, any notes recorded will automatically play back 2 bars later when the sequence loops back around, just like recording on a drum machine. Also, since the TIMING CORRECT function defaults to ON, any timing errors will have been corrected by moving your notes to the nearest 1/16 note.

11. To stop the sequence, press STOP.

NOTE: To change the time signature or number of bars, read section 4.3.2, "Creating a new sequence". To turn the loop off or change the loop setting, change the LOOP field.

NOTE 2: To adjust the TIMING CORRECT function or turn it off, read section 3.7, "The TIMING CORRECT key".

If you don't think it sounds as good as you intended, you may need some practice in following the metronome. If you want to erase what you've just recorded and start again, simply repeat steps 9 through 11 above. In RECORD mode, any existing notes in the track are <u>erased</u> as you record new notes, just like a tape recorder. Later, you will learn about OVERDUB mode, wherein new notes are <u>merged into</u> the existing notes in the track.

And that's how to record simple sequences.

3.6 An example of recording a multi-track sequence containing multiple instruments

The following is a step-by-step example of recording a multi-track sequence with a format of 4 bars of 4/4 time, containing the following tracks:

Track 1: Piano chords
Track 2: Bass
Track 3: Piano melody

First, set up the instruments:

In addition to the connections you made above to record a single track sequence:

1. Connect the MIDI THRU of the first synthesizer to the MIDI INPUT of a second synthesizer. Set that synthesizer to play a bass sound and set its midi receive channel to 2. Although there are 4 independent midi outputs, we'll only use one for now to keep things simple.

2. Set the MIDI SOFT THRU field (accessed by pressing the MIDI key) to ON. Otherwise, the bass synthesizer will not sound when the keyboard is played.

3. Connect your two synthesizers to an audio mixer and set the levels to equal volume.

4. The PLAY/RECORD screen should be showing. if not, press MAIN SCREEN.

5. Move the cursor to the SQNC field and select sequence 2. If sequence 2 already contains some data, select one of the 99 sequences which is currently empty, indicated by the word "(unused)" directly to the right of the sequence number in the sequence name field.

6. The upper line of the screen should display:

    "====== Play/Record (Record ready) ======"

If the words "Record ready" do NOT appear, press either the RECORD or OVERDUB key once. This will make the current sequence ready for recording.

Note: By pressing RECORD or OVERDUB, the selected empty
sequence will be created to contain 2 empty bars of 4/4 time
signature, set to play in a loop. These default values may be changed
by using the "Create new sequence" function, described in section
4.3.2

Next, record a first track of piano chords:

1. Follow the steps above in the section "An example of recording a
   simple one-track sequence", except this time record a 2 bar piano
   chord part. After the sequence loops back, you will hear the part
   you have just recorded play in the 2 bar loop, with all notes moved
   to the nearest 1/16 note.

2. Press STOP.

3. Listen back to the track by pressing PLAY START. To stop it
   again, press STOP.

4. If you like your track, but you want to add a few notes to it, you can
   overdub those notes into the track:

   A) Enter OVERDUB mode by holding OVERDUB and
      pressing PLAY START. In this form of recording, new
      notes are added into the active track but existing notes are
      not erased as in RECORD mode.
   B) Play the new notes.
   C) Listen back to your sequence— the new notes you just
      played have been overdubbed into the existing notes.

5. If you accidently played one or two wrong notes, you may erase
   them without affecting any other notes just recorded by following
   these steps:

   A) Enter OVERDUB mode by holding OVERDUB and
      pressing PLAY START.
   B) While in OVERDUB mode, hold down the ERASE key.
   C) Just before the wrong note is about to play, hold down the
      keyboard key of the wrong note, then quickly release it
      when the wrong note has passed.
   D) Release the ERASE key. The wrong note has now been
      permanently erased from the sequence.

Next, record the bass part on track 2:

1. Move the cursor to the TRAK field and type "2" (ENTER) to make
   track 2 active for recording.

2. Move the cursor to the upper CH field (5th line) and type "2" (ENTER), then select "A" in the field immediately to the right, to select midi channel 2A as the output channel for track 2.

3. If you play the midi keyboard now, the bass synthesizer should sound. If not, check the midi connections and re-check the previous steps. Also, check to see that the MIDI THRU field in the MIDI screen is set to ON.

4. Press the COUNT IN key — the light will go on. This will cause the metronome to play for one bar before the sequence starts, to cue you to start playing.

5. Enter OVERDUB mode by holding OVERDUB and pressing PLAY START.

6. Once the COUNT IN bar has passed, record your bass part in time to the metronome and track 1.

7. Press STOP and press COUNT IN again to turn it off.

8. If you make a mistake while recording, you may correct it by "punching-in" the new note:

> A) Hold the "<" key (rewind) until the NOW field shows a location about one bar before the mistake.
> B) Press PLAY (not PLAY START). The sequence will start playing from the position shown in the NOW field.
> C) Just before the wrong note plays, while holding PLAY, press RECORD to enter RECORD mode (existing notes are erased while new notes are recorded) then quickly play the correct note. You may now either "punch-out" by pressing RECORD again or continue recording from that point. There are two other ways to punch in: by using one of the two foot switches, or by using the AUTO PUNCH function. Read the corresponding sections to learn how to use these functions.

Now, record the piano melody part on track 3:

1. Move the cursor to the TRAK field and type "3" (ENTER) to make track 3 active.

2. Move the cursor to the upper CH field (5th line) and type "1" (ENTER), then select "A" in the field immediately to the right, to select midi channel 1A as the output channel for track 3. Notice that both tracks 1 and 3 are playing into midi channel 1A, the piano synthesizer.

3. If you play the midi keyboard now, the piano synthesizer should sound. If not, check the midi connections and re-check the

previous three steps. Also, check to see that the MIDI THRU field (accessed by pressing the MIDI key) is set to ON.

4. Enter RECORD mode by holding RECORD and pressing PLAY START.

5. Record your piano melody part in time to the first two tracks.

6. Press STOP.

7. Listen back to your three track composition by pressing PLAY START.

At this point, you can continue using this method to record up to 99 tracks, but all tracks must play through the 64 midi channels. If you want to save your new composition to disk, skip ahead to the DISK section. If you don't, it will be lost when the power is turned off!

3.7 The TIMING CORRECT key

The TIMING CORRECT function has many uses:

• It can correct timing errors made while recording notes.
• It can add a shuffle or swing timing to your performance.
• It can shift notes earlier or later in the sequence to compensate for synthesizer delays, etc.
• It is used to set the step size, used in STEP EDIT.
• It can assist in the recording of repeating notes, such as rolls and repeated 1/16 notes or 1/32 notes.

3.7.1 Correcting timing errors

The ASQ10 corrects any timing errors made while recording by moving those errors onto the nearest 1/16 note. If a note is played a little too early, it is moved later onto the nearest 1/16 note; if a note is played a little too late, it is moved earlier onto the nearest 1/16 note (A value of 1/16 notes is most often used, although this may be changed to one of six values, or timing correction may be defeated entirely). This correction of errors is done in real time as the notes are recorded, so playback of corrected notes is instantaneous. Also, it is possible to correct the timing of notes which were previously recorded.

One of the problems with timing correction (sometimes called "quantizing") is that on many sequencers it has the effect of truncating, deleting or elongating notes, making the feature impractical to use. The ASQ10 avoids this problem by only correcting the attacks of a note, then moving the end of the note along with the attack— the note duration is not changed. This allows the corrected notes to sound much closer to the original performance, but without the timing errors.

Another problem with timing correction on most sequencers is that all events are corrected along with the notes. This can have the undesirable effect of converting pitch bends into pitched "stair steps". The ASQ10 avoids this problem by only correcting the notes, while recording the continuous events such as pitch bends exactly as played. This allows, for example, the notes of a keyboard solo to be corrected but the pitch bends to be recorded exactly as played.

To inspect or change the timing correction settings, press TIMING CORRECT while the ASQ10 is not playing, and the following screen will be displayed:

```
====== Timing Correct / Step Size ======
Note Value:1/16          Shuffle(%):50
Shift Timing:LATER       Shift Amount: 0
========== Move Existing Notes ==========
Track(0=All): 1
From:001.01.00           To:001.01.00

<Move Existing>
```

This screen presents various parameters relevant to the timing
correct function. A description of each of the fields follows:

• The NOTE VALUE field:
Timing correction works by moving your recorded notes to a preset
note value. This field is used to select that note value. The options
are:

> 1. 1/8 NOTE: All notes are moved to the nearest 1/8 note
> 2. 1/8 TRPLT: All notes are moved to the nearest 1/8 note
>   triplet
> 3. 1/16 NOTE: All notes are moved to the nearest 1/16 note
> 4. 1/16 TRPLT: All notes are moved to the nearest 1/6 note
>   triplet
> 5. 1/32 NOTE: All notes are moved to the nearest 1/32 note
> 6. 1/32 TRPLT: All notes are moved to the nearest 1/32 note
>   triplet
> 7. OFF(1/384): No timing correction— in this setting, the
>   highest resolution of the ASQ10 is used— 94 divisions per
>   1/4 note.

This value also affects two other functions in the ASQ10:
> 1. It sets the NOTE REPEAT value, described later in this
>   section.
> 2. It sets the amount by which the current sequence position
>   changes when either the "<" or ">" (rewind, fast forward)
>   keys are pressed.

• The SHUFFLE field:
This is the shuffle setting, described in the section below entitled
"The shuffle function". This only has an effect if the setting of the
NOTE VALUE field is either 1/8 or 1/16 notes - for all other settings,
it has no effect. The input range is from 50% (no shuffle effect) to
75% (maximum shuffle effect).

• The SHIFT TIMING and SHIFT AMOUNT fields:
These two fields comprise the shift timing function, described below
in the section entitled "Shift Timing". There are two fields: The
SHIFT TIMING field specifies the direction of the shift - the options
are EARLIER and LATER. The SHIFT AMOUNT field specifies
the amount of shift in clocks (1/96 of a 1/4 note).

• The FROM and TO fields:
These 2 fields are used to specify the region of the sequence which will be altered when the <Move existing> soft key is pressed. These are BAR.BEAT.CLOCK fields — the region starts at the location entered in the FROM field and ends one clock <u>before</u> the location entered in the TO field.

• The TRACK(0=ALL) field:
This field is only used in conjunction with the <Move existing> soft key. It is used to specify the track number which is to be altered — entering a "0" indicates all tracks.

• SOFT KEY 1 — <Move existing>:
Normally, the timing correct function operates in real time, correcting notes before they are recorded into the sequence. It is also possible to correct the timing of an existing sequence (or shuffle it, or shift timing). Pressing this soft key will cause the region of the active sequence specified by the TO, FROM and TRACK fields to be corrected according to the settings of the NOTE VALUE, SHUFFLE, SHIFT TIMING and AMOUNT fields.

3.7.2   The "Shuffle" feature

The shuffle feature is a variation of timing correction. Whereas the timing correction feature moves your notes onto perfect note intervals, the shuffle feature moves your notes onto shuffled (swing time) note intervals, but only operates on either 1/8 or 1/16 notes. The amount of shuffle is measured as a percentage of the odd numbered note lengths to the even numbered note lengths. The range of values is from 50% to 75%. For example:

• A shuffle setting of 50% indicates no shuffle effect - the odd and even notes have equal value;
• A shuffle setting of 66% indicates a technically perfect shuffle - the odd numbered notes have a length of twice that of the even numbered notes, giving the effect of triplets where the second note of each triplet is tied to the first;
• A shuffle setting of 75% is the highest shuffle setting - the odd numbered notes have a length of three times that of the even numbered notes.

A very important result of using the shuffle feature is to add a "human" rhythm feel to the timing of your music. Here are a couple of very useful settings to experiment with:

• NOTE VALUE = 1/16, SHUFFLE = 54% to 58%, Tempo = 100 BPM:
This removes the "stiffness" from 1/16 notes and is especially useful on drum sequences using 1/16 note hihats.

• NOTE VALUE = 1/8, SHUFFLE = 60%, Tempo = 100BPM:
This creates an 1/8 note shuffle which could be described as
more relaxed than a perfect shuffle (66%).

As with timing correction, shuffle moves your notes in real time as
they are recorded into the sequence, so your notes are instantly
played back with the specified shift. Also, as with timing correction,
this effect can be used on existing sequence data by using SOFT
KEY 1 — <Move existing>.

3.7.3 The SHIFT TIMING feature

It is sometimes desirable to shift your notes earlier or later in time
by a consistent value. For example, if a given track is to play
through a synthesizer with a slow attack, the slow attack can be
compensated for by shifting the notes in the track earlier by an
amount equal to the length of the slow attack. The shift timing
feature works in conjunction with the timing correct feature to move
notes forward or backward in time.

As with timing correction, shift timing moves your notes in real
time as they are recorded into the sequence, so your notes are
instantly played back with the specified amount and direction of
shift. Also, as with timing correction, this effect can be used on
existing sequence data by using the <Move Existing> SOFT KEY.

NOTE: It is important to note that the this function only operates in
conjunction with the TIMING CORRECT function. This means that
it is not possible for this function to shift the timing of notes without
also correcting their timing. This also means that the range of shift
depends on the current NOTE VALUE setting. For example, if the
NOTE VALUE field is set to 1/16 notes, the maximum SHIFT
AMOUNT is 11 clocks, or less than 1/2 of one 1/16 note; if the NOTE
VALUE field is set to 1/32 notes, the maximum SHIFT AMOUNT is
5 clocks, or less than 1/2 of one 1/32 note; and if the the NOTE
VALUE field is set to OFF(1/384), the SHIFT AMOUNT is fixed at 0,
meaning that no shift is possible since timing correction is not
being used. If you wish to shift the timing of a track independently
of the timing correction function, then use the COPY/MERGE A
TRACK function, described in section 4.3.6.

NOTE 2: If the SHIFT TIMING function is set to shift notes early
and one or more notes exist at the start of the sequence, these starting
notes will be deleted when the <Move existing> operation is
performed, because there is no space before the start of the sequence
for them to be moved to. To avoid this problem, insert a blank bar
before bar 1 of the sequence before performing the shift operation,
then be sure to include this extra bar within the range of bars to be
shifted. This way, the notes which would have been lost will now be
moved earlier onto this newly inserted bar.

3.7.4 The NOTE REPEAT feature

Another very useful feature of the TIMING CORRECT key is the ability to automatically repeat either drum or keyboard notes at a preset note interval. This is useful in creating:

- Bass tracks consisting of constant repeating 1/16 notes.
- Drum rolls
- Repeating note drum patterns, such as 1/16 note hihat patterns

The NOTE REPEAT feature is used in real time while recording. To use this feature, press and hold TIMING CORRECT while in OVERDUB or RECORD mode, and the top line of the PLAY/RECORD screen will change:

```
=== (Hold drums or notes to repeat) ====
Sqnc: 1-Favorite_song    Tmpo:100.0 BPM
TSig: 4/ 4   Bars:   4   Loop:TO BAR  1
============== Track data ==============
Trak: 1-TRK01          Ch:16A-Drums
Vol%:100     Prog:  0   Ch: 0A-SYNTH01
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

If any keys are held down while TIMING CORRECT is being held, they will be automatically repeated at the TIMING CORRECT note value setting. Further, the velocity level of each repeating note is set by the current pressure setting of the key being played (if your midi keyboard has CHANNEL PRESSURE capability). To demonstrate this effect:

1. Set up a blank sequence for recording, following the steps in the "An example of recording a simple one-track sequence".
2. Press TIMING CORRECT .
3. Using the NOTE VALUE field, select the timing value at which you want the notes to automatically repeat. For repeated 1/16 notes, select "1/16 NOTE".
4. Press MAIN SCREEN to return to the PLAY/RECORD screen.
5. Enter RECORD mode by holding RECORD and pressing PLAY START.
6. While holding TIMING CORRECT, also hold a chord on the midi keyboard, varying the pressure as you hold it (if your keyboard has midi CHANNEL PRESSURE capability). You should hear the chord automatically repeat at 1/16 note intervals.

3.8 Tempo

There are many functions in the ASQ10 associated with tempo.
First, there is the TMPO field in the PLAY/RECORD screen:

```
============== Play/Record =============
Sqnc: 1-(unused)         Tmpo:120.0 BPM
TSig: 4/ 4    Bars:  2    Loop:TO BAR  1
============== Track data ==============
Trak: 1-(unused)         Ch: 1A-SYNTH01
Vol%:100     Prog:  0    Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

To change the tempo at any time while playing or recording, move
the cursor to the TMPO field and change it.

Another way to quickly change the tempo is using the
<Tmpo=MAS> soft key in the PLAY/RECORD screen. When
pressed, it instantly switches between two preset tempo settings, the
MASTER and SEQUENCE tempo. These two tempo settings will be
described later in the "Tempo screen" section. This feature is
useful, for example, to quickly switch between the normal playing
tempo and a slower tempo for recording.

3.8.1 The TEMPO screen

To display the TEMPO screen, press the TEMPO key, and the
following screen will appear:

```
================ Tempo =================
Tempo Source Select:SEQUENCE
Sequence:120.0          Master:120.0
============ Display Mode ==============
BPM/FPB:BPM             Frames/Sec:30
=============== Other ==================
Tap Averaging:3
<TempoChanges>
```

This screen presents most parameters associated with tempo. A
detailed description of the individual screen fields and soft keys
follows:

• The TEMPO SOURCE SELECT field:

There are two tempo settings, SEQUENCE and MASTER, only one of which may be active at a time. This field is used to select which one is active:

SEQUENCE:

The SEQUENCE tempo is the tempo setting which is stored within each sequence. If SEQUENCE mode is currently active, then whenever the sequence number is changed, the newly selected sequence's tempo will become active. This is useful when playing sequences, for example, if you want each newly selected sequence to play at its own preset tempo. Also, only the SEQUENCE tempo is saved to disk when a sequence is saved.

MASTER:

The MASTER tempo is a single tempo setting for all sequences which is not stored within any sequence. This is useful when playing sequences, for example, if you want each newly selected sequence to always play at the same tempo.

• The SEQUENCE TEMPO field:

This is the current value of the sequence tempo, described above.

• The MASTER TEMPO field:

This is the current value of the master tempo, described above.

• The BPM/FPB field:

This field selects one of two display methods for the tempo readouts:

BPM (Beats Per Minute):

This is the most common method in use to specify a tempo setting. Using BPM, the range of tempo settings in the ASQ10 is from 30 BPM to 300 BPM. Beats Per Minute is also sometimes referred to as "metronome marking" or "MM".

FPB"(Frames Per Beat):

This is another way of specifying tempo settings and is often used in the making of music for film or video sound tracks, because the tempo is referenced to the number of film or video frames which pass for every beat of music. Frames Per Beat is also sometimes referred to as "click". If the FPB setting is in use, the digit to the right of the decimal point in any of the numeric tempo settings indicates 1/8s- its range is from 0 to 7. There are four different types of FPB tempo, described in the FRAMES/SEC field below.

This field has the same function as the "tempo display method" field in the PLAY/RECORD screen.

• The FRAMES/SEC field:
This field selects one of four FRAMES PER SECOND standards, used to calculate the current FPB (frames per beat) setting. The four options are:

"30" (30 frames per second, non-drop):
This is the standard for black and white television in the United States. Using this mode, the tempo range of the ASQ10 is from 60.0 to 6.0 FPB. This mode is the most common standard in use today for music production in the United States and Japan.

"30 DROP" (30 frames per second, drop frame):
This is the standard for NTSC color television in the United States. Using this mode, the tempo range of the ASQ10 is from 59.7 to 6.0 FPB.

"25" (25 frames per second):
This is the standard for European television (PAL /SECAM standard). Using this mode, the tempo range of the ASQ10 is from 50.0 to 5.0 FPB. This mode is the most common standard in use today for music production in the United Kingdom and Europe.

"24" (24 frames per second):
This is the standard for film. However, since film is usually transferred to video for scoring, the composer still works with the video standard frame rates. Using this mode, the tempo range of the ASQ10 is from 48.0 to 5.0 FPB.

• The TAP AVERAGING field
This parameter is used in conjunction with the TAP TEMPO key. The TAP TEMPO key is used to quickly set the playing tempo by tapping the key repeatedly in the time of 1/4 notes of the desired tempo, described further in the section "The tap tempo key". This field sets the number of repeated "taps" which must be played in sequence before the tempo is recalculated, so that successive taps are averaged to reduce any timing errors. The options are:

2 taps:
The tempo is recalculated after only two taps. This should be used if your timing is very good, or if you want to only roughly set the new tempo.

3 taps:
Initially, the tempo is recalculated after the first two taps. If you continue to tap successive 1/4 notes, the tempo is continuously recalculated by averaging the last three successive tap intervals. This is a good average setting.

4 taps:
Initially, the tempo is recalculated after the first two taps. If you tap a third time, the tempo will be recalculated using an average of the three taps. If you continue to tap successive 1/4 notes, the tempo is continuously recalculated on each successive tap by averaging the last four successive tap intervals. This is very useful if your timing is not very accurate, because it smooths out your timing errors.

• SOFT KEY 1 — <Tempo changes>:
The function of this soft key is described in the following section.

3.8.2   Mid-sequence tempo changes

This feature allows the tempo to automatically change at preset locations within a sequence. To insert tempo changes into the active sequence or to view existing tempo changes, press the TEMPO key, then press the <Tempo Changes> soft key, and the following screen will appear:

```
====== Mid-sequence tempo changes ======
Tempo changes:ON
Location for inserted change:001.01.00

Change#: Bar#:       %Change: =Tempo:
   2      002.03.00  150.000  180.0 BPM
=========================================
<Insert new> <Delete> <Previous> <Next>
```

In the center of the screen is a group of fields, labeled CHANGE#, BAR#, %CHANGE and "=TEMPO". In this case, the labels are located directly above the actual data fields. These four fields work together to allow you to view or change any tempo changes existing in the sequence.

There may be many tempo changes in the sequence. These 4 fields show one of these changes at a time. The CHANGE# field shows the number of the currently displayed tempo change within the list of changes, and the other fields show the contents of that tempo change. For example, the above screen shows that tempo change number 2 will occur at bar 2, beat 3 and will change the tempo by 150% to 180 beats per minute.

The following is a description of each of these 4 fields:

- CHANGE#:

This field displays the number of the tempo change currently displayed. There may be many tempo changes within the sequence, but only one may be viewed at a time. By changing this number, each of the existing tempo changes may be viewed. The <Previous> and <Next> soft keys may also be used to decrement or increment this field.

- BAR#:

This field shows the location within the sequence where the currently displayed tempo change will occur. This is a BAR.BEAT.CLOCK field.

- %CHANGE:

This field shows the amount of tempo change which the currently displayed tempo will produce, as a percentage of the main starting tempo (either master or sequence). Tempo changes are always specified as a percentage of the main starting tempo setting, (not the previous tempo change) regardless of whether the SEQUENCE or MASTER tempo setting is currently active. This way, all tempo changes are automatically re-scaled when the main tempo setting (either sequence or master) is changed.

- "=TEMPO":

This field displays the actual tempo which will play once the tempo change is active, in addition to the percentage. This number is automatically computed from the displayed percentage of change times the main playing tempo (either master or sequence).

So, to view the entire list of tempo changes, simply change the CHANGE# field and notice the different settings of the other 3 fields as you change it. Even if no changes have been entered, every sequence has one change— to 100% at bar 1. This is because the current tempo setting is always returned to when the sequence plays bar 1, whether it does so by playing from the start or by looping back to the start.

To insert a new tempo change, first enter the location within the sequence where you want the change to occur into the LOCATION FOR INSERTED CHANGE field, which is a bar.beat.clock field. Then, press the <Insert new> soft key. Immediately, a new tempo change will be inserted into the list and will be displayed on the screen with a default value in the %CHANGE field of 100%. You must now enter a percentage of the main starting tempo. However, as you enter the percentage, the "=TEMPO" field will show the actual tempo. For example, to insert a tempo change to 60 BPM at bar 5 from a main starting tempo setting of 120 BPM, you must insert a tempo change with a value of 50% at bar 5 (120 BPM X 50% = 60 BPM).

To delete the currently displayed tempo change, press the <Delete> soft key.

The field at the top of the screen, TEMPO CHANGES, is a choice field with 2 options: ON and OFF. If set to ON, tempo changes are used; if set to OFF, all tempo changes within the sequence are ignored.

3.8.3 The TAP TEMPO key

The TAP TEMPO key allows the tempo to be quickly set by tapping 2 beats (1/4 notes) on the TAP TEMPO key. After two taps, the ASQ10 automatically assumes the two taps to be 1/4 notes and recalculates a new tempo to match those 1/4 notes.

For example, to quickly change to a tempo of 80 BPM, tap two 1/4 notes at a tempo of approximately 80 BPM on the TAP TEMPO key. After the second tap, the new tempo will appear in the TMPO field of the main PLAY/RECORD screen. This may also be done while the sequence is playing.

Normally, only two taps are required before the ASQ10 recalculates the new tempo. However, it is possible to set this feature so that it recalculates the tempo by averaging the last 3 (or 4) successive tap intervals. This is set in the TAP AVERAGING field, located in the TEMPO screen, and is explained further in that section of the manual.

3.8.4 Sequencer speed limitations at fast tempos

If many notes exist at exactly the same location within a sequence and that sequence is played at a fast tempo, some of the notes may be slightly delayed when played back. For example, if 20 notes all play exactly at position 002.01.00 within the sequence and the playing tempo is 200 BPM, some of these 20 notes occurring at the same time may be delayed as much as 10 to 20 milliseconds when played back. This condition exists to some degree in all sequencers, and is due to the fact that there is a finite number of notes which the internal computer can process at one time. However, this will NOT cause the sequence to slip out of sync when syncing to an external sync source.

If you have one of these complex sequences and notice these occassional timing irregularities when playing at a fast tempo, the problem may be caused by having too many unused channel pressure events (sometimes called after touch) in your sequence. For example, many keyboards, such as the Yamaha DX-7, commonly send out large amounts of channel pressure messages while playing, which are recorded into your tracks. If you are using these messages, removing them from the tracks will improve the playback timing. To do this, press the ERASE key and use the ERASE FILTER to only erase channel pressure events from each of your tracks (see section 4.2: the ERASE key). If you rarely use channel pressure capability, it is best to disable recording these events in the MIDI INPUT FILTER (see section 8.2).

If you have erased all unnessary events from all tracks of your sequence and the timing is still not accurate enough, there is another alternative which can be used when syncing to tape: record the sequence to tape a few tracks at a time, and turn off the tracks you are not recording for each pass by using the <Trak=ON> soft key (in the PLAY/RECORD screen). Since the unrecorded tracks are turned off, the computer does not have to use as much time to process them, and can use all of its time to play the tracks which are being played, avoiding the delay when all tracks play. Note that this delay is not affected by the number of tracks which playing, but rather only by the number of notes or events which are playing at the same exact location within the sequence, and the playing tempo.

3.9 The WAIT FOR KEY key

This function is useful in the recording of keyboard sequences when your keyboard is not located close to the ASQ10 console. If PLAY, RECORD or OVERDUB mode is entered while the WAIT FOR KEY function is on, the sequence will not begin to play until a key — any key — is played on the midi keyboard. This acts as a remote play switch to start the sequence. However, this first key which is played to start the sequence is NOT recorded into the sequence— it only starts the sequence, and any keys played afterwards are recorded into the sequence.

To turn WAIT FOR KEY mode on, press the WAIT FOR KEY key once and the light goes on to indicate it has been activated. To turn WAIT FOR KEY mode off, press the WAIT FOR KEY key again and the light will go off to indicate it has been deactivated. If set to ON, it will automatically go OFF after it has been used once— you must turn it on again each time you want to use it.

3.10 The AUTO PUNCH key

The AUTO PUNCH function, when set to ON, enables OVERDUB or RECORD modes to be automatically entered and exited at preset times while playing. This can be very useful when it is desired to execute a very tight punch-in and there isn't enough time to get from the console keys to the keyboard to play the new notes after the punch-in. The AUTO PUNCH function "punches in" automatically for you, allowing you to concentrate on playing the new part.
Pressing AUTO PUNCH displays the following screen:

```
============== Auto Punch ==============
On/Off:OFF
Auto Punch: In=120.01.00  Out=120.01.00
Last Punch: In=120.01.00  Out=120.01.00


========================================
<Use'Last'>
```

The following is a detailed description of each of the fields and the single soft key:

• The ON/OFF field:
This field is used to select whether the AUTO PUNCH function is ON or OFF. If set to on, the AUTO PUNCH light goes on.

• The AUTO PUNCH IN and AUTO PUNCH OUT fields:
These two fields are used to specify the locations within the sequence at which the punch-in and punch-out will occur. To enter a number into either of these two fields, type the bar number, a period, the beat number, a period, and the clock number, then ENTER. If the number you wish to enter is at the start of a bar, simply enter the bar number followed by ENTER, and the beat and clock numbers will automatically be reset.

• The LAST PUNCH IN and LAST PUNCH OUT fields:
These two fields are indicators only - they cannot be manually changed. They are used to indicate the exact locations of the punch-in and punch-out which was last manually performed.

• The <Use last> soft key:
Pressing this soft key causes the contents of the LAST PUNCH IN/OUT fields to be copied into the AUTO PUNCH IN/OUT fields. This is useful when you want to repeat the last manual punch using the AUTO PUNCH function.

To perform the AUTO PUNCH:

Once you have entered the punch-in and punch-out locations, and you have turned AUTO PUNCH mode on, locate to a position within the sequence which is a few bars before the punch-in point. Then enter RECORD mode as usual by pressing PLAY and RECORD simultaneously. However, since the AUTO PUNCH function is on, RECORD mode cannot yet be entered. Instead, the RECORD light blinks until the PUNCH-IN point is reached. When it is reached, RECORD mode is automatically entered and the RECORD light stops blinking and stays on continuously. When the PUNCH-OUT point is reached, RECORD mode is automatically exited and the RECORD light goes off, but play continues.

It is also possible to use AUTO PUNCH to automatically enter and exit OVERDUB mode. To do this, follow the example given above, but instead of pressing RECORD, press OVERDUB. The mode which is entered is determined by which key is pressed - RECORD or OVERDUB.

3.11 The SECOND SEQUENCE key

This function allows the ASQ10 to play an additional sequence while simultaneously playing or recording the active sequence. For example, you could use the active sequence to linearly record all of your keyboard tracks while simultaneously using the 2ND SEQUENCE to play a looped drum sequence. The 2ND SEQUENCE may also play simultaneously with the active song, if SONG MODE is selected.

To use this feature, press the 2ND SEQUENCE key, and the following screen will appear:

```
============== 2nd Sequence ==============
On/off:ON   Sequence:23-A_funny_sequence
(This sequence will play simultaneously
 with the active sequence or song.)


=========================================
```
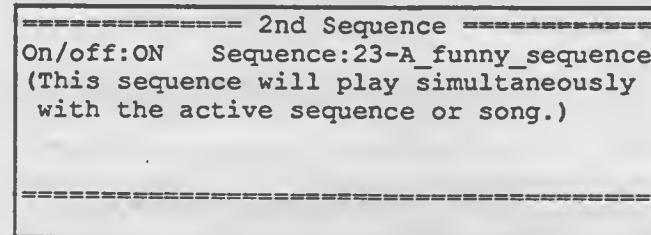
To turn the second sequence on, first select the sequence number which you would like to play simultaneously with the active sequence in the SEQUENCE field. The name of the selected sequence is displayed to the right of the number for convenience. Next, move the cursor to the ON/OFF field and select "ON" by turning the DATA CONTROL one notch to the right. The light above the 2ND SEQUENCE key will turn on as an indicator. Now, when you play the active sequence or song, the sequence you selected in the 2ND SEQUENCE screen will also play. To turn the feature off, return to the 2ND SEQUENCE screen and select "OFF" in the ON/OFF field.

3.12 The COUNT IN key

This function causes a single bar of metronome clicks to play before the sequence starts playing or recording, acting as a count in or count down before the sequence starts playing, to help you to adjust to the sequence tempo.

To turn COUNT IN on, press the COUNT IN key (the light will go on). To turn it off, press COUNT IN again (the light will go off).

NOTE: If the current position within the sequence is not at the start of a bar, and PLAY is pressed while COUNT IN is on, the sequence will start playing from the start of the current bar (after the count in has passed). If not for this, the sequence would begin playing in the middle of the bar after one bar of count in, which would not make musical sense.

NOTE 2: Any keys played on the input midi keyboard while the COUNT IN bar is playing will not be output through midi until the COUNT IN bar has finished. For example, if you were to play a chord towards the end of the COUNT IN bar, just slightly before bar 1 of the sequence, the chord would sound when bar 1 started playing, which could be easily misunderstood as a processing delay. This is normal operation and serves as a reminder that no notes may be recorded during the COUNT IN bar, and that any notes played during that time will be held and recorded at the start of the sequence.

3.13 The recording metronome

Whenever RECORD or OVERDUB mode is entered, a click sound is heard through the ASQ10's speaker on every 1/4 note, with a louder click at the start of each bar. This is the recording metronome. There are two metronome adjustments, both of which are accessed by pressing the OTHER key, which displays the following screen:

```
=============== Metronome ===============
Volume:14     Rate:1/4 NOTE    In play:NO
============= Foot switches =============
Foot1:PLAY-STRT/STP Foot2:RCRD IN/OUT
================= Other =================
Free sequence memory%:100

<Defaults><Record 16 chs>
```

The three metronome adjustments are:

• The METRONOME field:
This field controls the volume of the metronome, both to the built-in speaker and to the metronome output jack. The range is 0 (off) to 14 (full volume).

• The RATE field:
This field controls the note value of the metronome. Normally, the metronome plays 1/4 notes. In this field it is possible to change that value to one of eight options:

1/4 notes	1/4 triplets
1/8 notes	1/8 triplets
1/16 notes	1/16 triplets
1/32 notes	1/32 triplets

• The IN PLAY field:
This is a choice field which has two options:
  1. "NO": The metronome is only heard during RECORD or OVERDUB modes, but not while in PLAY mode.
  2. "YES": The metronone is heard in PLAY, as well as in RECORD and OVERDUB modes.

The METRO OUT jack on the rear panel:

This output jack may be used to send the metronome signal to a mixer or amplifier. If a plug is inserted into this jack, the metronome sound will no longer be heard through the internal speaker.

3.14 The two Foot switch inputs

There are two foot switch inputs on the rear of the ASQ10. Each of the two foot switch inputs may be independently assigned to one of a number of different functions. To assign the foot switches, press the OTHER key, and the following screen will appear:

```
=============== Metronome ================
Volume:14    Rate:1/4 NOTE    In play:NO
============= Foot switches ============
Foot1:PLAY-STRT/STP Foot2:RCRD IN/OUT
================ Other ================
Free sequence memory%:100

<Defaults><Record 16 chs>
```

The FOOT1 and FOOT2 fields are used to assign the functions of the two foot switches. Each may be independently assigned to one of the following functions:

- PLAY/STOP:
Press once for PLAY, again for STOP.

- PLAY START / STOP:
Press once for PLAY START, again for STOP.

- ERASE:
Press to duplicate the function of pressing ERASE. This is very useful for hands-free use of the real-time erase function.

- TIMING CORRECT
Press to duplicate the function of pressing TIMING CORRECT. This is very useful for hands-free use of the NOTE REPEAT function.

- "+":
Press to duplicate the function of turning the DATA CONTROL to the right one step.

- "-":
Press to duplicate the function of turning the DATA CONTROL to the left one step.

- RECORD IN/OUT:
Press once to duplicate the function of punching in to RECORD mode while playing; press again to duplicate the

function of punching out of RECORD mode back into PLAY mode.

• OVERDUB IN/OUT:
Press once to duplicate the function of punching in to OVERDUB mode while playing; press again to duplicate the function of punching out of OVERDUB mode back into PLAY mode.

• "<":
Press to duplicate the function of pressing the "<" key. This is very useful for stepping backwards through the sequence while STEP EDIT is on.

• ">":
Press to duplicate the function of pressing the ">" key. This is very useful for stepping forwards through the sequence while STEP EDIT is on.

• TAP TEMPO:
Press to duplicate the function of pressing the TAP TEMPO key.

3.15 The "Free sequence memory" display

To see how much memory is currently available for sequence recording, press the OTHER key:

```
============== Metronome ===============
Volume:14     Rate:1/4 NOTE    In play:NO
============== Foot switches ============
Foot1:PLAY-STRT/STP Foot2:RCRD IN/OUT
================= Other ================
Free sequence memory%:100

<Defaults><Record 16 chs>
```

The FREE SEQUENCE MEMORY field displays the percentage of total sequence memory which is available for new recording.

3.16 How to change sequences while playing

If you have more than one sequence loaded into the ASQ10 at one time, it is possible to change from one sequence to another while the ASQ10 is playing. If you do, the newly selected sequence will not start playing until the current sequence has finished. When the new sequence number is entered, the top line of the screen will display the message:

"=========== (Next sequence: 2) =========="

This indicates that the newly selected sequence (in this case, sequence number 2) will start playing once the current sequence has finished playing.

IMPORTANT!: This process will only operate while the top line of the PLAY/RECORD screen displays the following words:

"============ Play/Record ============"

This indicates that the ASQ10 is NOT ready for recording. This process will NOT operate if the ASQ10 is enabled for recording, indicated by the following top line of the PLAY/RECORD screen:

"====== Play/Record (Record ready) ======"

If these words are displayed, you must first disable recording by doing the following:
      1. Select a different sequence; then
      2. Re-select the original sequence

This feature is very useful for creating the structure of a song in real time while the ASQ10 is playing. For example, while the sequence containing the 1st verse is playing, you could enter the sequence number containing the chorus, which will starting playing once the verse sequence is finished. Then, you might enter the sequence number containing the second verse, which will start playing once the chorus sequence has finished. This process may be continued infinitely.

NOTE: If you use the DATA CONTROL to select a new sequence while playing, only the next higher or next lower sequence may be selected. If you want to select a sequence which is greater than one higher or lower, you must use the numeric keypad.

3.17 Recording Midi System Exclusive data

The ASQ10 has the capability to record patch library data or any other midi System Exclusive messages directly into tracks. To do this, simply send the System Exclusive message to the ASQ10 while in RECORD or OVERDUB modes, or while in STEP EDIT mode, and it will be recorded into the active track, just like any other midi data. The only limitation is that the message must be less than 1000 bytes. If an attempt is made to record a message which is larger than this, the entire message will be rejected. This will easily accomodate single voice patch data dumps from any synthesizer, but is not large enough for many voice bank data dumps (large files containing an entire bank of single voice data dumps).

One way of using this feature is to insert a blank bar at the beginning of your sequence and record the voice data dumps for each track into that first bar. When the sequence is played from the start, each external synthesizer will immediately receive the voice data in the first bar and is then ready to play the sequence's note data starting in the second bar.

There is one problem with playing System Exclusive messages from sequences: there is no standard method for identifying the midi channel number within the message, and therefore the ASQ10 cannot assign the output midi channel over which the message will be sent. This means, for example, that a System Exclusive message sent over midi channel 3 while recording into the ASQ10 will always be played out of the ASQ10 on midi channel 3, regardless of the track's output midi channel. To overcome this problem, you must send the System Exclusive message on the desired midi channel while recording it into the ASQ10. Most synthesizers allow you to select the transmit channel. However, the Yamaha DX-7 always transmits on midi channel 1.

There is a way to ASQ10 the midi channel of a System Exclusive message while it is in the ASQ10— by using STEP EDIT. The midi channel is assigned to a single byte within the message and the Step Edit function allows you to change the contents of any byte within the message. If you know which byte a particular manufacturer uses for the channel number, you can change the contents of that byte to the desired midi channel number. For example, the Yamaha DX-7 System Exclusive messages contain the midi channel in byte number 3, so whatever number you put into byte number 3 of the message will be the new output midi channel number. To learn more about editing in step edit mode, read section 4.4: "The STEP EDIT key".

3.18 Transferring sequences to and from other sequencers

Transferring sequences from the ASQ10 to an external sequencer:

Some sequencers are able to record data from all 16 midi channels independently and simultaneously onto one track. To transfer a sequence from the ASQ10 to a sequencer of this type:

> 1. Set the ASQ10 to generate MIDI CLOCK (explained in section 8 of this manual),
> 2. Set the external sequencer to receive MIDI CLOCK,
> 3. Set the external sequencer ready to start recording as soon as a MIDI START message is received from the ASQ10,
> 4. Play the ASQ10.

If the external sequencer does not allow the recording of all 16 midi channels simultaneously, you must transfer one track at a time.

Transferring sequences from an external sequencer to the ASQ10:

Normally, the ASQ10 may only record one track at a time. However, there is a special mode of recording which allows you to record all 16 channels at once, which is very useful when transferring sequences from other sequencers. This feature works by recording the 16 incoming channels onto the first 16 tracks of a newly created empty sequence, with each track is assigned to the same numbered midi channel. For example, track 1 assigns to channel 1, track 2 assigns to channel 2, up through track 16 which assigns to channel 16. The track setup is done automatically for you when you select the new sequence to be recorded into.

NOTE: It is not possible to overdub or record into an existing sequence while using this special mode.

To record all 16 channels from an external sequencer, follow these steps:

1. Connect the external sequencer's MIDI OUT to the ASQ10's MIDI IN 1. (You may alternatively use input 2 — both inputs merge together.) Also, set the external sequencer to send MIDI CLOCK signals (with or without song position pointer).

2. Go to the SYNC screen and set the ASQ10 to sync to "MIDI CLOCK W/SONG POSITION POINTER". Also, set the MIDI field to "1" (if the external sequencer was connected to midi input 1).

3. Press the OTHER key, then select SOFT KEY 2, <Record 16 chs>, which causes the following screen to be displayed:

```
======== Record all 16 channels ========
Sqnc: 1-XXXXXXXXXXXXXXXX  Time sig: 4/ 4
Enter data, then press <Proceed>.
WARNING: THE EXISTING SEQUENCE CONTENTS
WILL BE ERASED! Timing correct is forced
to "OFF(1/384)" during record.
===============================================
<Proceed>
```

This screen allows you to select the sequence to be recorded into, and the time signature of the new sequence which will be created. As the screen states, pressing <Proceed> will completely erase the contents of the selected sequence.

4. Enter the desired data into these fields and when finished, press the <Proceed> soft key. The following screen will appear:

```
======== Record all 16 channels ========
Sqnc: 1-XXXXXXXXXXXXXXXX Tmpo:120.0 BPM
TSig: 4/ 4   Bars:  1     Loop:OFF
 (Hold RECORD & play ext sequencer. The
  16 channels will record into tracks
  1 through 16, with drums on 16.)
===== Bar:001.01.00 (00:00:00.00) ======
```

This is the screen from which the actual recording will take place. You have now created a new sequence containing one bar of the time signature you entered in the previous screen.

The first 16 tracks have been assigned to midi channels 1 through 16 as described above. If you have set the MIDI CHANNEL FOR DRUMS field (see section 9.2) to 16, then track 16 is assigned as the only "drums" track. Because of this, you should transfer any drum data on channel 16 and check to see that the note-to-drum assignments of the external sequence match the assignments in the ASQ10. These can be changed by pressing the DRUMS key and selecting option 1.

The tempo value is taken from the current master tempo if MASTER tempo mode is active, or from the tempo setting in the CREATE SEQUENCE screen if SEQUENCE tempo mode is currently active. This tempo setting may be changed.

The LOOP field is forced to "OFF" and cannot be changed while in this screen. This is necessary because loop recording is not

permitted during 16 channel record mode. As is normal when LOOP is set to "OFF" in the PLAY/RECORD screen, additional bars are added to the end of the sequence as it is recorded past the last bar. This way, the sequence will continue to add bars as you record, even though the display initially shows "Bars: 1".

As the screen states, the NOTE VALUE setting in the TIMING CORRECT screen is forced to "OFF(1/384)" during 16 channel recording.

5. While holding the RECORD key on the ASQ10, start the external sequencer playing from the beginning of its sequence. As soon as the ASQ10 receives the sync signals, it will enter RECORD mode and begin recording the data from the other sequencer in real time. Once the transfer is finished, stop the external sequencer and the ASQ10 will stop automatically, or manually stop the ASQ10.

NOTE: The OVERDUB key is disabled during this mode.

6. The ASQ10 now contains the transferred sequence and may be played using the PLAY, PLAY START, <<, <, LOCATE, >, and >> keys. Play the sequence— it the transfer was successful, press MAIN SCREEN to return to the PLAY/RECORD screen to edit the sequence as usual. If the transfer didn't come out as intended, simply try again by repeating step 4 above.

3.19 The "Analyzing sequence. Please wait..." message

Occasionally, and very infrequently, you will see the "Analyzing sequence. Please wait..." message on the lowest line of the screen, requiring you to wait briefly while the ASQ10 does some "thinking". This occurs only under the following conditions:

1. When you first select a sequence which is very long, then play it, then press STOP.
2. When you first select a sequence which is very long, then press any of the FAST FORWARD, REWIND, or LOCATE keys.
3. After you perform one of the EDIT operations.
4. In SONG mode, after you change any parameters in the song, but only if the song contains many different sequences.

This waiting time is normal and is necessary in order for the ASQ10 to create what programmers call an "index table" for the newly selected sequence. Once this process is done, all subsequent FAST FORWARD, REWIND, and LOCATE operations will be immediate, as will be all responses to incoming SMPTE, SONG POSITION POINTER, or MIDI TIME CODE sync signals.

Section 4:
Editing Sequences

4.1 Overview

This section of the manual describes the functions which relate to the editing of sequence data. In this section, you will learn to:

• Erase notes in real time while in overdub mode.
• Erase selected notes or other midi events while stopped.
• Select which types of Midi events get erased.
• View a list of the sequence's time signature changes and number of bars for each change.
• Create a new format of time signature / number of bars .
• Insert blank bars into a sequence.
• Delete selected bars from a sequence.
• Copy a selected range of bars from a sequence and insert them elsewhere into the same or another sequence.
• Copy a range of bars from one track to another track.
• Merge two tracks together.
• Copy one sequence over another.
• Convert a song (song mode) into one long sequence for more detailed editing.
• Shorten or lengthen a bar by changing its time signature.
• Change the velocity or duration values of a group of notes after recording.

4.2 The ERASE key

There are four main areas of the erase function:

- Erasing notes while in overdub mode ("Live erase" mode)
- Erasing specific events while stopped

Each is described in detail in the following sections.

4.2.1 Erasing notes while overdubbing ("Live erase" mode)

One of the ways to erase notes is called "live erase" mode. If the
ERASE key is pressed and held during OVERDUB mode, the top
line of the main screen changes for as long as ERASE is held:

```
========= (Hold notes to erase) ========
Sqnc: 1-Example_sequence Tmpo:120.0 BPM
TSig: 4/ 4   Bars:  2      Loop:TO BAR  1
============== Track data ===============
Trak: 1-TRK01          Ch: 1A-SYNTH01
Vol%:100     Prog:  0    Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

If, during this time, you hold a synth key, any occurrences of that
key on the selected track while both are held will be erased.

4.2.2 The ERASE screen

If the ERASE key is pressed while the ASQ10 is not playing, one of
the following two screens will appear:

(If the active track is a "non-drums" track)

```
================= Erase =================
Track(0=all): 1
From:001.01.00        To:001.01.00
============= Erase filter =============
Erase:ONLY ERASE NOTES
==== Play 2 keys to set note range =====
Lowest:F#-2          Highest:C#.3
<Erase it><All bars><All notes>
```

4.2 The ERASE key

There are four main areas of the erase function:

- Erasing notes while in overdub mode ("Live erase" mode)
- Erasing specific events while stopped

Each is described in detail in the following sections.

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One of the ways to erase notes is called "live erase" mode. If the ERASE key is pressed and held during OVERDUB mode, the top line of the main screen changes for as long as ERASE is held:

```
========= (Hold notes to erase) ========
Sqnc: 1-Example_sequence Tmpo:120.0 BPM
TSig: 4/ 4   Bars:  2     Loop:TO BAR  1
============== Track data ==============
Trak: 1-TRK01           Ch: 1A-SYNTH01
Vol%:100     Prog:  0    Ch: 0A-(OFF)
===== Now:001.01.00 (00:00:00:00) ======
<Trak=ON ><Solo=OFF><Tmpo=MAS><SortTrks>
```

If, during this time, you hold a synth key, any occurrences of that key on the selected track while both are held will be erased.

4.2.2 The ERASE screen

If the ERASE key is pressed while the ASQ10 is not playing, one of the following two screens will appear:

(If the active track is a "non-drums" track)

```
================= Erase =================
Track(0=all): 1
From:001.01.00        To:001.01.00
============= Erase filter =============
Erase:ONLY ERASE NOTES
==== Play 2 keys to set note range =====
Lowest:F#-2         Highest:C#.3
<Erase it><All bars><All notes>
```

(If the active track is a "drums" track)

```
================= Erase ================
Track(0=all): 1
From:001.01.00        To:001.01.00
============= Erase filter =============
Erase:ONLY ERASE C1-MODULATION WHEEL
======= Press drums to be erased =======

<Erase it><All bars><All drums>
```

These two screens allow a specified selection of either drums or keyboard notes to be erased from a single track while the ASQ10 is not playing. To erase the notes, enter the appropriate data in each of the data fields, then press SOFT KEY 1: <Erase it>. Each of the screen fields and soft keys is described below:

• The TRACK(0=ALL) field:
This field specifies the track from which the data will be erased. The active track is automatically inserted here. To erase all tracks, enter a "0" here, and the screen will change to the following:

```
================= Erase ================
Track(0=all): 1
From:001.01.00        To:001.01.00
============= Erase filter =============
Erase:ONLY ERASE C1-MODULATION WHEEL
    (All notes/drums will be erased)

<Erase it><All bars>
```

In this case, it is not possible to select specific notes or drums for erasure. Instead, all notes and drums will be erased (if the erase filter is set to ONLY ERASE NOTES or ALL EVENTS).

• The FROM and TO fields:
These two fields set the region to be erased, starting with the location specified in the FROM field, up to *one clock before* the location specified in the TO field. They are both "BAR.BEAT.CLOCK" type fields, allowing you to set the region to be erased in increments as small as one clock.

• The ERASE FILTER section:
This section of the screen allows you to very quickly select a particular midi event type for erasure. The ERASE field is a choice field and has 3 options:

      1. ALL EVENTS: If this option is selected, all possible midi event types will be erased.

      2. ONLY ERASE: If this option is selected, only one event type will be erased, and the type of event to be erased appears in a choice field appearing directly to the right on the same line. In this rightmost field, all event types are listed, including all 128 midi controllers, each

individually named as listed in the "Midi 1.0 Detailed Specification, Document Revision 4.0".

3. ALL EXCEPT: If this option is selected, all midi event type EXCEPT one will be erased, and the type of event which will NOT be erased appears in a "choice" field appearing directly to the right on the same line. In this rightmost field, all event types are listed, including all 128 midi controllers, each individually named as listed in the "Midi 1.0 Detailed Specification, Document Revision 4.0".

• The LOWEST and HIGHEST fields ("Non-drums" tracks only):
In this screen, the notes to be erased are specified by entering a range of keys on the midi keyboard, from LOWEST to HIGHEST. These may be set in the normal way by scrolling through all 127 options using the data wheel, but there is a much faster way: both fields may be instantly entered by pressing two keys on the input midi keyboard - the lower of the two notes will be entered into the LOWEST field and the higher of the two will be entered into the HIGHEST field. The lowest and highest possible note values are automatically entered into these fields when the screen is first displayed.

• The PRESS DRUMS TO BE ERASED area ("Drums" tracks only):
To specify the drums to be erased, press the keyboard keys assigned to each of the drums you want to be erased and the 4 character names of each of the drums entered will be listed in this area.

• SOFT KEY 1 — <Erase it>:
Pressing this soft key performs the above erase specified by the data in the screen fields. After the erasure has been performed, the PLAY/RECORD screen is re-displayed.

• SOFT KEY 2 — <All bars>:
Pressing this soft key instantly sets the FROM and TO fields to the start and end of the active sequence, respectively. This is useful when it is desired to erase the entire length of the track.

• SOFT KEY 3 — <All drums> ("Drums" screen only):
Pressing this soft key displays the names of all 32 drums (or as many as will fit) in the PRESS DRUMS TO BE ERASED area of the screen, indicating that all 32 drums are to be erased.

• SOFT KEY 3 — <All notes> ("Non-drums" screen only):
Pressing this soft key sets the LOWEST field to the lowest possible midi note number, and the HIGHEST field to the highest possible midi note number. This is a quick way of specifying that all notes must be erased.

4.3 The EDIT key

The EDIT key encompasses the following functions related to editing of the active sequence:

- Viewing all time signature changes
- Creating a new sequence
- Inserting blank bars into a sequence
- Deleting specified bars from a sequence
- Copying a section and inserting it elsewhere within the same or another sequence
- Copying a single track to another area or merging it with other data
- Copying an entire sequence to another sequence
- Converting a song into one very long sequence
- Lengthening or shortening a bar by changing the time signature
- Changing the velocity or duration values of a group of notes after recording

When the EDIT key is pressed, the following screen is displayed:

```
============= Edit sequence =============
1)View time sign    2)Create sequence
3)Insert blank bars 4)Delete bars
5)Copy all tracks   6)Copy/merge a track
7)Copy a sequence   8)Convert song
9)Change bar length 0)Change veloc/dur

Select option:
```
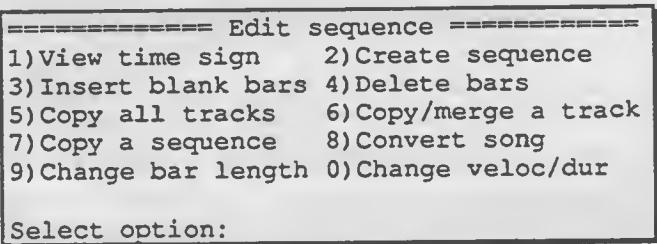
Pressing a single number key will cause the screen for the selected function to be displayed.

4.3.1 Viewing time signature changes

This function displays the time signature and number of bars in the active sequence, and any time signature changes, but does not allow any changes to be made. To use this function, select option 1 from the EDIT screen and the following screen will be displayed:

```
========== View Time Signature ==========
Bar  1 -  3: 4/ 4



====================================
<NextPage><PreviousPage>
```

This screen displays all time signature changes within the active sequence, and the number of bars for each change. If no time signature changes exist, the existing single time signature and the total number of bars in the sequence will be displayed. Space is given for 10 time signature changes with 2 changes per line. If more exist, the <NextPage> soft key is used to view further pages of changes, and the <PreviousPage> soft key is used to re-display earlier pages.

4.3.2 Creating a new sequence

This function is used to create an entirely new sequence format for the active sequence. However, this erases the entire contents of the active sequence! To use this function, press option 2 from the EDIT screen and the following screen will be displayed:

```
========== Create new sequence ==========
Time sig: 4/ 4        Number of bars:  2
Loop:TO BAR  1        Tempo:120.0 BPM
Midi channel for track  1 (0=unused):16A



====================================
<Execute>
```

The following is a description of the on-screen fields:

• The TIME SIG field (time signature):
This is the time signature of the bars which will be created. This is actually two fields— one for each part of the time signature.

• The NUMBER OF BARS field:
This is the number of bars which will be created.

• The LOOP field:
This field is a choice field with 2 options: OFF and TO BAR 1. If set to OFF, the newly created sequence will automatically stop when it plays to the end (or if in RECORD mode, it will continue to add bars

onto the end). If set to TO BAR 1, the newly created sequence will loop back to bar 1 when it plays to the end; or if you want the sequence to loop to a bar other than 1, move the cursor to the number 1 and change it to the number of the bar you want the sequence to loop to.

• The TEMPO field:
This sets the "sequence" tempo for the newly created sequence (not the "master" tempo).

• The "MIDI CHANNEL FOR TRACK 1 (0=UNUSED)" field:
This is actually 3 fields which allow a single output midi channel to be assigned to each of the 99 tracks. To set the output midi channel assignment for each track:

1. Move the cursor to the number which appears to the right of the word "track" (this is a data field) and select the number of the track you want to assign. Now, the current assignment for that track will appear to the right of the colon (":").
2. Move the cursor to the number directly to the right of the colon and enter the number of the midi channel you want the selected track to play through (1 - 16). If you don't want that track to be active at all, enter a "0" here.
3. Move the cursor one position to the right and use the DATA CONTROL to select the output port you want the selected track to play through (A, B, C, or D).

• SOFT KEY 1 — <Execute>:
Pressing this soft key causes the existing sequence to be completely erased and a new sequence format to be created using the data entered in the screen fields.

NOTE: If you select an empty sequence (a sequence with the name "unused"), then press RECORD or OVERDUB, the sequence will immediately be created using the settings in this screen.

4.3.3 Inserting blank bars within a sequence

This function inserts a specified number of blank bars into the current sequence. To use this function, select option 3 from the EDIT screen, and the following screen will appear:

```
========== Insert Blank Bars ==========

Number of bars: 2          Time sign: 4/4
Insert before bar:3



=======================================
<Execute>
```

The on-screen fields are:

• The NUMBER OF BARS field:
This is the number of blank bars to be inserted.

• The TIME SIGN field (time signature):
This is the time signature of the bars to be inserted. This is actually
two fields— one for each part of the time signature.

• The INSERT BEFORE BAR field:
This field specifies the bar number which the new bars will be
inserted before. To insert bars after the end of the sequence, enter
here the number of the bar which is one higher than the last bar of the
sequence.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the insertion according to the above
displayed parameters.

NOTE: If the sequence is set to loop to an earlier bar (in the time
signature / ending status screen) and the new bars are inserted
before the loop bar, causing the sequence to now loop to a different
place, the bar number specified in the LOOP field will
automatically be adjusted to compensate for the insertion.

4.3.4 Deleting bars from within a sequence

This function allows you to delete a specified number of bars from
the active sequence. To use this function, press option 4 from the
EDIT screen and the following screen will be displayed:

```
=============== Delete Bars ==============

  From bar:1              To bar:3



=========================================
<Execute>
```

The on-screen fields are:

• The FROM BAR field:
This is the 1st bar to be deleted.

• The TO BAR field:
This field specifies the end of the region to be deleted (the bar number following the last bar to be deleted). For example, to delete bars 3 and 4, you would enter a 3 in the FROM BAR field and a 5 in the TO BAR field, because bar 5 is the *end* of the region to be deleted.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the above specified deletion.

NOTE: If the sequence is set to loop to an earlier bar (in the time signature / ending status screen) and the deleted bars are before the loop point, causing the sequence to now loop to a different place, the bar number specified in the LOOP field will be automatically changed to compensate for the insertion.

4.3.5 Copying a section, including all tracks, and inserting it elsewhere

This function allows you to copy a specified range of bars from one sequence and insert it into any other point within the same sequence or any other sequence. In this form of the copy function, all tracks are copied, and this data is inserted into the new location. In this mode of copy, the overall length of the sequence will always be increased by the copy. To use this function, select option 5 from the EDIT screen, and the following screen will appear:

```
========= Copy all tracks from =========
Sequence: 1
From bar:  1      To bar:  3
========== Copy all tracks to ==========
Sequence: 1
Copies:  1          Insert before bar:  3
========================================
<Execute>
```

The on-screen fields are described below:

• The SEQUENCE field (in the COPY ALL TRACKS FROM section):
This field is used to specify the sequence number to be copied from.

• The FROM BAR and TO BAR fields:
These fields set the range of bars to be copied from. FROM BAR sets the 1st bar which is to be copied, and TO BAR sets the *end* of the

region to be copied (the bar number following the last bar to be copied).

• The SEQUENCE field (in the COPY ALL TRACKS TO section):
This field is used to specify the sequence number to be copied to.

• The COPIES field:
This field specifies the number of copies of the specified data will be inserted into the insertion point. Normally, this would be set to 1.

• The INSERT BEFORE BAR field:
This field specifies the bar number which the copied data will be inserted before. To insert the bars after the end of the sequence, enter here the number of the bar which is one higher than the last bar of the sequence.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the copy according to the entered parameters.

NOTE: If the sequence is set to loop to an earlier bar (in the time signature / ending status screen) and the copied bars are inserted before the loop bar, causing the sequence to now loop to a different bar, the bar number specified in the LOOP field will automatically be adjusted to compensate for the insertion.

4.3.6 Copying a single track to another area or merging it with other data

This function permits the copying of all events within a specified region on a single track to a different point on the same or another track. In this function, only the events from the source track are copied— no time signature or tempo data is copied. Unlike the COPY ALL TRACKS function which inserts the copied data into the sequence, increasing the overall length, this form of the copy function either replaces the existing events or merges with the existing events, without adding any additional bars. Therefore, in this function, the overall length is unchanged after the copy. Common uses of this function are:

• Copying one track to another
• Merging (bouncing) two tracks together
• Shifting a track earlier or later in increments as small as one clock

To use this function, select option 6 from the EDIT screen, and the following screen will be displayed:

```
======= Copy/merge a track from ========
Sequence: 1        Track: 1
From:001.01.00   To:001.01.00
======== Copy/merge a track to =========
Sequence: 1        Track: 1     Copies:  1
Start copy at:001.01.00      Mode:REPLACE
=========================================
<Execute>
```

A description of the on-screen fields follows:

• The SEQUENCE field (the COPY/MERGE A TRACK FROM section):
This is the sequence from which the data will be copied. The active sequence number is automatically inserted here when this screen is entered.

• The TRACK field (the COPY/MERGE A TRACK FROM section):
This is the track from which the data will be copied. The active track is automatically inserted here when this screen is entered.

• The FROM and TO fields:
These fields are used to set the region of the track which will be copied from, starting at the clock location specified in the FROM field and including all data up to but not including the clock specified in the TO field. These are BAR.BEAT.CLOCK type fields, enabling you to specify the region in units as small as one clock.

• The SEQUENCE field (the COPY/MERGE A TRACK TO section):
This is the sequence to be copied into. The active sequence number is automatically inserted here when this screen is entered.

• The TRACK field (the COPY/MERGE A TRACK TO section):
This is the track to be copied into. The active track number is automatically inserted here when this screen is entered.

• The COPIES field:
This field specifies the number of copies, end onto end, which are to be added into the new sequence. This is normally "1".

• The START COPY AT field:
The copied data may be added into the destination sequence and track starting at any location. This field specifies the starting location for the copied data to be placed. This is a BAR.BEAT.CLOCK type field, allowing the copied data to be placed at any location, in increments as small as one clock.

• The MODE field:
This is a choice field with 2 options:

1. REPLACE:
In this mode, all existing events in the destination track are replaced by the newly copied data - the existing events are overwritten.

2. MERGE:
In this mode, the copied data is merged, or added, into the existing events.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the copy as specified in the above fields.

NOTE 1: This function provides a way to shift the timing of tracks forward or backward by any amount. To do this, simply copy a track to itself, but slightly earlier or later. This provides an advantage over the "Shift timing" function (in the TIMING CORRECT screen) which cannot be used without simultaneously applying timing correction to the track.

NOTE 2: If an attempt is made to copy events from a "drums" track to a "non-drums" track (or vice versa), the following warning screen will appear, informing you that it cannot be done:

```
=============== Attention! ===============
The copy cannot be done because the data
from a"drums" track cannot be copied to
a "non-drums" track (or vise versa).



<Cancel>
```

Pressing the <Cancel> soft key will return to the previous screen.

NOTE 3: If the copied data is longer than the sequence to be copied into, the portion of the copied data which extends past the end will not be copied. If an attempt is made to copy past the end of the destination sequence, the following warning screen will appear when <Execute> is pressed:

```
=============== Attention ===============
The sequence you are copying into may
not be long enough to accept the entire
copy. Do you want to proceed anyway,
even though no notes will be copied past
the end?

<Proceed>
```

At this point, you may either press <Proceed> to copy it anyway, or press MAIN SCREEN to cancel the copy.

NOTE 4: If the destination track is unused, the contents of the CH fields (in the PLAY/RECORD screen) of the source track will be copied to the corresponding fields of the destination track.

4.3.7   Copying an entire sequence to another sequence

This function is useful if you want to make a perfect copy of a sequence, including all parameters, into another sequence number, replacing all data and parameters previously contained in that sequence number. To use this function, select option 7 from the EDIT screen, and the following screen will be displayed:

```
===== Copy One Sequence To Another =====

   Copy contents of sequence: 1
   into sequence: 2
   (The existing contents of the des-
    tination sequence will be erased!)
=========================================
<Execute>
```

A description of the on-screen fields follows:

• The COPY CONTENTS OF SEQUENCE field:
This is the sequence to be copied from. The active sequence number is automatically inserted here when this screen is entered.

• The INTO SEQUENCE field:
This is the sequence whose contents will be replaced by the contents of the above specified sequence number. The lowest numbered empty sequence is automatically inserted here when this screen is entered.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the above specified copy.

4.3.8 Converting a song into a single long sequence

"Song mode" is useful in creating the format of a song quickly. However, it is very cumbersome compared to sequence mode when fine tuning the details of a complex song. It is therefore useful to initially create a song using song mode, then convert that song into a long sequence, using the more versatile sequence editing features to complete the song. This function does that conversion. All the sequences in the song, including the repetitions, are copied end onto end to the specified sequence number. Additionally, the song's loop status is used for the sequence's loop status. Also, the track names, midi output channel assignments, stereo mixer settings, echo mixer settings, tuning settings, and tempo settings for the newly created sequence are taken from the first sequence in the song only. To use this function, select option 8 from the EDIT screen, and the following screen will appear:

```
======= Convert song to sequence =======

  Convert song: 1      Into Sequence: 2

(The existing contents of the
 destination sequence will be erased!)
=========================================
<Execute>
```

The fields are:

• The CONVERT SONG field:
This is the song which will be converted in a sequence. The current song is always defaulted to.

• The INTO SEQUENCE field:
This is the sequence which will contain the converted song. The lowest numbered empty sequence is inserted here by default.

• SOFT KEY 1 — <Execute>:
Pressing this soft key performs the copy as specified. This may take as much as 30 seconds or more.

NOTE: ALWAYS BE SURE THAT EACH OF THE SEQUENCES IN THE SONG HAVE IDENTICAL MIDI CHANNEL ASSIGNMENTS FOR THEIR TRACKS. When playing a song in song mode, it is possible for each of the sequences within a song to have different midi channel assignments from sequence to sequence because each sequence uses its own set of assignments. For example, track 5 could be assigned to midi channel 2 in one sequence; it could then be followed by a different sequence in which track 5 plays through midi channel 3. However, once a song to sequence conversion is done, only the assignments from the first

sequence in the song are used in the newly created long sequence.
For this reason, before converting a song to a sequence, be certain
that the midi channel assignments for each of the sequences match
from sequence to sequence. It is especially important that the
"drums" or "non-drums" status of each track match from sequence
to sequence within the song. (See section 9, "features related to
drums".) If an attempt is made to convert a song which has a
mismatch in drums / non-drums status, the following error screen
will be displayed and the conversion is aborted:

```
============== Attention! ==============
The conversion cannot be done because
a "drums" track cannot be appended onto
a "non-drums" track (or vise versa):
Track XX is mismatched between sequence
XX and YY. Please RE-ORDER the tracks of
one of these sequences, then try again.
<Cancel>
```

To correct the problem, you must use either change the midi channel
assignment of one of the mismatched tracks, or use the <SortTrks>
soft key from the PLAY/RECORD screen to change the track order
of one of the two mismatched sequences before attempting the
conversion again.

4.3.9 Shortening/lengthening a single bar

This function allows you to change the length of a particular bar
within a sequence by changing its time signature. It works like
this: if the new time signature you change to is shorter than the
existing one, the unused end of the bar is truncated; if the new time
signature is longer than the existing one, a small amount of blank
space is added onto the end of the bar. For example, if you need to
remove one 1/8 note from the end of a 4/4 bar, you would change its
time signature to 7/8.

To use this function, press the EDIT key and select option 9 from the
menu, and the following screen will appear:

```
====== Shorten / lengthen a bar ========
Change the time signature of bar:  1
from  4/ 4 to  4/ 4.
(If the new time sig is shorter, the end
of the bar is truncated; if longer,
blank space is added to the end.)
=========================================
<Execute>
```

First, select the bar number to be changed in the BAR field in the top line. The existing time signature for that bar will be displayed in the FROM field in the second line. Next, enter the time signature you wish to change to in the TO field in the second line. To perform the change, press the <Execute> soft key.

4.3.10 Changing the velocity or duration of a group of notes after recording

This new feature allows you to globally modify the duration or velocity values of a group of notes within a track. You may set them to a fixed value, add or subtract an amount from them, or multiply them by a selected percentage:

```
======= Change velocity/duration =======
Track: 1    From:001.01.00    To:001.01.00
Change:VELOCITY                 Value:127
Action:SUBTRACT "VALUE" FROM EACH



===========================================
<Execute>
```

The fields are:

  • The TRACK field:
This sets the track number which will be modified.

  • The FROM and TO fields:
These 2 fields set the region within the track which will be affected. These are both BAR.BEAT.CLOCK type fields.

  • The CHANGE field:
This is a choice field with 2 options: VELOCITY and DURATION. It is used to select which of these 2 parameters the function will affect.

  • The VALUE field:
This field works in conjunction with the ACTION field and sets the number which will be used to change the velocities or durations.

  • The ACTION field:
This is a choice field and has 4 options:

        1. ADD "VALUE" TO EACH: This selection adds the number in the VALUE field to each note in the range.

2. SUBTRACT "VALUE" FROM EACH: This
   selection subtracts the number in the VALUE field
   from each note in the range.
3. MULTIPLY EACH BY "VALUE" %: This
   selection multiplies each note in the range by the
   number in the VALUE field.
4. SET EACH TO "VALUE": This selection changes
   each note in the range to the number in the VALUE
   field.

• SOFT KEY 1— <Execute>:
After you have entered the correct data in each of the above
fields, pressing this soft key performs the actual function.

Example:
To reduce the velocity values of all notes in a track by half,
set the screen fields to the following values:
1. Set the TRACK field to the track you wish to
   change;
2. Set the FROM field to the start of the sequence;
3. Set the TO field to the end of the sequence;
4. Set the CHANGE field to VELOCITY;
5. Set the VALUE field to 50;
6. Set the ACTION field to MULTIPLY EACH BY
   'VALUE' %
7. Press <Execute>

4.4   The STEP EDIT key

The STEP EDIT function allows the contents of the active track to be edited in precise detail. When the STEP EDIT key is pressed, any notes or events which exist in the active track at the current sequence position are displayed on the screen as a series of data fields, which may then be edited. Also, any notes played at this time are recorded into the active track at the current sequence position.

STEP EDIT can also be thought of as "note edit" mode. We use the term "step edit" because "step mode" in sequencers traditionally refers to the ability to record or edit sequences while stopped, which is what this function does.

4.4.1 The STEP EDIT screen

To enter step edit mode, press the STEP EDIT key. The following screen will appear, displaying any notes or events which exist in the active track at the current sequence position:

```
=============== Step Edit ===============
>01-CONTRL>C1-MODULATION WHEEL   Val:   54
 02-Note>  C.3    Vel:083/064    Dur:  142
 03-Note>  F#-2   Vel:076/064    Dur:   91
 04-Note>  G.-1   Vel:102/064    Dur:   99
 05-Note>  G#6    Vel:094/064    Dur:   63
===== Now:001.01.00 (00:00:00:00) ======
<Insert> <Delete> <PlayEvent> <Options>
```

A description of the fields and soft keys follows:

• The event display area (lines 2 through 6 of the LCD screen):
This area of the screen displays up to five events, one per line, existing in the active track at the location within the sequence displayed in the NOW field. These events are most commonly notes (either drum or keyboard notes, depending on whether the active track is a drums or non-drums track), but may also be one of a number of special midi control events. The format of each of the various event types is described in detail later in this section.

• The NOW field:
The field shows the current position within the sequence exactly as in the PLAY/RECORD screen. As in the PLAY/RECORD screen, this value is changed by using the "<<", "<", ">", ">>", and

LOCATE keys. As this value changes, the event display area is constantly updated to display the events contained at this displayed location.

• SOFT KEY 1 — <Insert>:
Pressing this soft key causes a new event to be inserted at the current sequence position. The type of event inserted is determined by the EVENT TO INSERT field in the STEP EDIT OPTIONS screen.

• SOFT KEY 2 — <Delete>:
Pressing this soft key causes the active event to be deleted from the track. The active event is the event at the uppermost line of the screen (preceded by the ">").

• SOFT KEY 3 — <PlayEvent>:
Pressing this soft key causes the active event to be played. The active event is the event at the uppermost line of the screen (preceded by the ">").

• SOFT KEY 4 — <Options>:
Pressing this soft key displays the following screen:

```
============ Step Edit Options ==========
Event to insert:C5-PORTAMENTO TIME
Auto step increment on key release:YES
Duration of recorded notes:AS PLAYED
======= Step Edit Display Filter =======
View:ALL EXCEPT C1-MODULATION WHEEL
```

This screen presents a number of options related to step editing:

• The EVENT TO INSERT field:
This parameter selects which type of midi event will be inserted when the <Insert> soft key is pressed from the STEP EDIT screen. The options include all the available midi event types, including all 128 midi controllers. If one of these controllers is selected, the name assigned to the that controller is also displayed, as assigned in the "Midi 1.0 Detailed Specification, Document Revision 4.0".

• The AUTO STEP INCREMENT ON KEY RELEASE field:
If set to YES, the ">" key (fast forward) will automatically be pressed internally by the ASQ10 after each key from the midi keyboard is released, or if a chord was played, after the last key from the chord is released. This allows, for example, the recording of a series of notes or chords, one 1/16 note for each, without having to manually advance to the next 1/16 after playing each key. If this field is set to NO, this effect is defeated.

• The STEP EDIT DISPLAY FILTER section:
This is a "filter" similar to the erase filter or the midi input
filter, except this one controls which types of midi events
existing in the track get displayed in the step edit screen. For
example, if the only events you wanted to edit were pitch bend
messages, it would be bothersome to have to view all the other
events. Another example would be to filter out all continuous
controller data to make it easier to view only the notes.

To use the display filter, move the cursor to the VIEW field.
This is a choice field with 3 options:

1. ALL EVENTS: If this option is selected, all
   possible event types will be displayed.
2. ONLY VIEW: If this option is selected, only one
   event type may be displayed, and the type of event
   to be displayed is selected in a new field appearing
   directly to the right on the same line. In this
   rightmost field, all event types are listed,
   including all 128 midi controllers, each
   individually named as listed in the "Midi 1.0
   Detailed Specification, Document Revision 4.0".
3. ALL EXCEPT: This option is similar to ONLY
   VIEW, above, except that all event types except the
   event displayed to the right of the words ALL
   EXCEPT are displayed.

4.4.2 Using STEP EDIT

Using STEP EDIT is simple:

1. Use the FAST FORWARD, REWIND, or LOCATE
   functions to find the desired approximate location (or just
   play the sequence until you hear the desired location, then
   press STOP);
2. Press STEP EDIT. The NOW field will change to the
   nearest timing correct location (usually the nearest 1/16
   note), and any notes existing in the active track at that
   location will be displayed on the screen.
3. You can now edit any of the data fields for any of the
   displayed notes by moving the cursor to the desired field
   and editing it. Also, any notes played will be recorded at
   this location and immediately displayed on the screen.

4. To view other locations within the sequence, use the FAST FORWARD, REWIND, or LOCATE functions, just as you would while the PLAY/RECORD screen is displayed.
5. Once you're finished, press MAIN SCREEN to return to the PLAY/RECORD screen.

NOTE 1: The "<" and ">" keys cause the current position of the sequence to move backward or forward one 1/16 note (one "step"). To change this distance, change the NOTE VALUE field in the TIMING CORRECT screen.

NOTE 2: The STEP EDIT screen only displays notes which exist at the the exact location displayed in the NOW field. This can sometimes cause confusion. For example, in a sequence containing a series of 1/32 notes playing a major scale, if you are stepping through the sequence one 1/16 note at a time by repeatedly pressing the ">" key, you will hear only the odd numbered notes in the scale with each new key press— the even numbered 1/32 notes will be *hidden* between the 1/16 notes. In order to view all of the 1/32 notes, you must change the NOTE VALUE field in the TIMING CORRECT screen to "1/32". Then you will view each successive 1/32 note in the scale as you repeatedly press the ">" key.

NOTE 3: If the current SHUFFLE setting is other than 50%, pressing the "<" and ">" keys will move to locations which fall on *shuffled* 1/16 notes. If at this time you are editing a sequence which contains 1/16 notes recorded at a shuffle setting of 50%, the even numbered 1/16 notes will NOT be heard as you step through the sequence, because only notes existing in shuffled 1/16 note locations will be viewed. This same rule applies to the SHIFT TIMING function— if the SHIFT AMOUNT field is set to "0" and you are editing a sequence which was recorded while the SHIFT AMOUNT field was set to any amount other than "0", none of the notes will be seen as you step through the sequence, because these notes fall on *shifted* locations, and you are currently viewing notes falling on *non-shifted* locations.

Here's more details about STEP EDIT:

The step edit screen may display up to five events, one on each line, which exist at the current sequence position, or "step". The format of the event line is different for each type of event, but the first two fields of each event type are the same:

```
          ┌─ The event number within the step
          │    ┌─ The event type
          │    │   ┌─Data fields for this event ─┐
          ▼    ▼   ┌                              ┐
        │>01-Note> C#3  Vel:083/064     Dur: 142 │
```
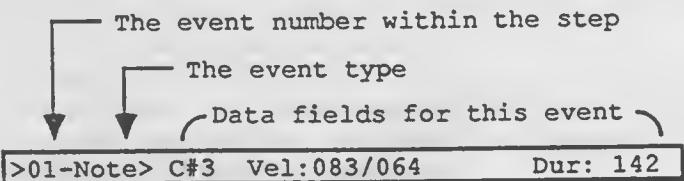
At the left edge of the screen is the event number within the current step. There can be many events at this step, and this field indicates the number of the event within the step. For example, if a three note chord existed at this step, this field would show the number of each note within the chord. To the right of the event number is an untitled choice field, containing the type of event displayed. Examples of midi events are: notes, pitch bend, program change, etc. The other fields to the right are unique for each type of event. The available types of events and their associated data fields are:

```
>01-Note> C#3  Vel:083/064      Dur:0142
```

This is a NOTE event. The fields are:
1. PITCH (untitled): This choice field has no title, but contains the pitch of the note, showing the note name (C through B; sharps are indicated by a "#"), followed by the octave (-2 through 8). The range is from C-2 to G8.
2. VEL (velocity): This is actually two fields: the initial velocity and the release velocity. The range for both is from 0 to 127.
3. DUR (duration): This field shows the duration from the "note on" to the "note off", measured in clocks (1/384 notes). The range is 1 - 9999.

```
>01-Note> TOM1 Vel:064 Tun:-120 Dur:  93
```

This is a DRUM NOTE event. The fields are:
1. DRUM NAME (untitled): This choice field indicates which of the 32 internal drum names this event applies to.
2. VEL (velocity): This is the velocity of the drum note.
3. TUN (tuning): This field sets the tuning for the displayed note only, and is added to the tuning settings in the TUNE DRUMS screen and the EDIT A SOUND screen. The range is from -120 to +60, in increments of 1/10 of 1 semitone. The TUN field has no effect unless the external sound generator responds to the ASQ10's system exclusive drum tuning messages. See section 9, "Features related to drums" for more details about tracks containing drum data.
4. DUR (duration): This field shows the duration from the "note on" to the "note off", measured in clocks (1/384 notes). The range is 1 - 9999.

```
>01-Note> HIHT Vel:064 Dcy:102  Dur:  93
```

This is a special case drum note event for the hihat. The difference is that the TUN field is replaced by the DCY field, indicating the decay time of the hihat. The range is from 0 to 127). There is no TUN field for the hihat. This decay information is sent out over midi controller 20. See section 9,

"Features related to drums" for more details about tracks containing drum data.

```
>01-CONTRL>C1-MODULATION WHEEL  Val:   64
```

This is a MIDI CONTROLLER event. There are 128 different controllers in midi, each one assigned to a different controller number. To the right of the selected controller is displayed the name of that controller, as assigned in the document "Midi 1.0 Detailed Specification, Document Revision 4.0". The VAL field contains the numeric value of the displayed controller event.

```
>01-Program Change>           Val:   64
```

This is a PROGRAM CHANGE event. The single field is VAL, with a range of 0 - 127, used to select the program number.

```
>01-Channel Pres>            Val:   64
```

This is a CHANNEL PRESSURE event. This is also called "after touch" and applies to all notes played on this channel. The only field is VAL (value), with a range of 0 - 127.

```
>01-Poly Pressure> Note:C.1    Val:   64
```

This is a POLYPHONIC PRESSURE event. It is a continuous controller event which allows each note played on the keyboard to send its own key pressure information. There are very few keyboards which send this information. The fields are: NOTE (the note to which the pressure message applies) and VAL (the pressure value, from 0 to 127).

```
>01-Pitch Bend>              Val:   23
```

This is the PITCH BEND event. The VAL field contains the actual numeric value of the pitch bend event. It is a signed field and the range is from -8192 to 8191.

```
>01-Mix Volume> Drum:TOM3     Val:  127
```

This is a MIX VOLUME event, and is used to change the stereo mixer volume setting of a particular drum in mid-sequence. It exists to maintain compatibility with the Akai MPC60. There are two fields: DRUM (which of the 32 internal drum names this event applies to) and VAL (the new mixer setting, 0 - 127). See section 9, "Features related to drums" for more details about tracks containing drum data.

```
>01-Mix Pan> Drum:TOM4        Val:  127
```

This is a MIX PAN event, and is used to change the stereo mixer pan setting of a particular drum in mid-sequence. It exists to maintain compatibility with the Akai MPC60. There are two fields: DRUM (which of the 32 internal drum

names this event applies to) and VAL, the new mix pan setting, from 0 (fully left) to 127 (fully right). See section 9, "Features related to drums" for more details about tracks containing drum data.

```
>01-Echo Volume> Drum:PRC2     Val: 127
```

This is an ECHO VOLUME event, and is used to change the echo mixer volume setting of a particular drum in mid-sequence. It exists to maintain compatibility with the Akai MPC60. There are two fields: DRUM (which of the 32 internal drum names this event applies to) and VAL (the new echo mix setting, 0 - 127). See section 9, "Features related to drums" for more details about tracks containing drum data.

```
>01-SysEx>   Size:999   Byte:999  Val: 127
```

This is a SYSTEM EXCLUSIVE event. It represents any system exclusive message. There are three fields: SIZE (the total number of data bytes), BYTE (the number of the byte whose contents are currently displayed in the Val field) and VAL (the current value of the byte number displayed in the BYTE field). The maximum size of a system exclusive event is 999 bytes.

Of the five on-screen events, only the uppermost line may be edited, and is edited by moving the cursor to the desired field within the line and editing the field contents. This uppermost line is called the "active event" and is preceded by a ">". To edit an event, it must be moved up to the active event line using the CURSOR UP and CURSOR DOWN keys. This procedure is described below.

To move to different locations within the sequence, use the "<" or ">" keys to move backward or forward one step, and the "<<" or ">>" keys to move backward or forward one bar, just as in the PLAY/RECORD screen. As with the PLAY/RECORD screen, the size of the step is determined by the NOTE VALUE field in the TIMING CORRECT screen. It is most commonly set to a 1/16 note.

As you move through the sequence to each new step (usually one 1/16 note) by pressing the "<" and ">" keys, any events at the new current step will be played (output through midi), just as though the sequence had been played at that step only. As you step through the sequence step by step, the screen is updated by placing the first event within that step at the "active event" line. To edit any of the fields in the line, move the cursor left or right to the desired field and change the contents as desired. If there are multiple events at that step, they will be displayed on the other on-screen event lines. Use the CURSOR UP or CURSOR DOWN keys to access different events by scrolling the screen's 5 line "window" UP or DOWN, and thereby moving higher or lower numbered events to the "active event" line. As an example, using the "<" and ">" keys would move from step to step to access a chord at each step; and the CURSOR UP and

CURSOR DOWN keys would access the individual notes in each chord.

NOTE: All mid-sequence control changes, including the 128 CONTROLLERS, PITCH BEND, PROGRAM CHANGE, MIXER VOLUME, MIXER PAN, and ECHO MIX VOLUME, only take effect when played in a sequence. This means if you play a section of a sequence containing a specific controller event, the last played value of that controller will remain until another occurrence of the same controller is played, even if you stop the sequence and start playing it from another location. Because of this, whenever you use one of these events within a sequence, it is important to insert another event of the same type at the beginning of the sequence to set the controller to an initial value.

4.4.3 Step recording

Step edit also makes possible the recording of new notes from the midi keyboard using a step-by-step method. To record a note while in step mode, move to the desired position within the sequence, then play and release the desired note from the midi keyboard. This note will then appear as the new current event, with its pitch, velocity, release velocity and duration displayed numerically. The duration of the note is taken from the actual duration played, relative to the current tempo. However, if the DURATION OF RECORDED NOTES field in the STEP EDIT OPTIONS screen is set to SAME AS STEP, The duration always defaults to the current NOTE VALUE setting in the TIMING CORRECT screen.

If the AUTO STEP INCREMENT ON KEY RELEASE field in the STEP EDIT OPTIONS screen is set to YES, the current position within the sequence will automatically advance one step forward when the newly recorded note (or chord) is released. This will allow you to, for example, record a series of notes (or chords) one at a time while stopped, and automatically play them back as perfect 1/16 notes. To do this:

1. Set up your sequence and track for recording from your midi keyboard as you would to record in real time;
2. Rewind to the start of the sequence;
3. Press STEP EDIT;
4. Press SOFT KEY 4, <Options>;
5. Set the AUTO STEP INCREMENT ON KEY RELEASE field to YES;
6. Press STEP EDIT again;
7. Play a series of notes (or chords), one at a time;
8. Press PLAY START— the notes you have just entered will play back as a series of perfect 1/16 notes.

4.5 The EDIT LOOP key

This function allows a specified number of bars within a sequence to repeat in a loop while playing or overdubbing. This allows for quick recording or editing of the looped section. Pressing EDIT LOOP displays the following screen:

```
============== Edit Loop ===============
Number of Bars:2    1st Bar:54



========================================
<Turn Loop On>
```
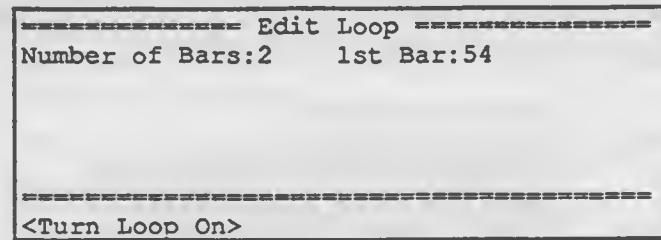
The screen fields and soft keys are:

• The NUMBER OF BARS field:
This field specifies the number of bars which will be looped when the edit loop is created.

• The 1ST BAR field:
This field specifies the starting bar of the work loop. The current bar number is automatically inserted here.

• SOFT KEY 1 — <Turn loop on>:
Pressing this soft key turns the edit loop on. It also causes the PLAY/RECORD screen to be re-displayed and the EDIT LOOP light to go on, indicating that an edit loop is active.

If EDIT LOOP is again pressed while an edit loop is active, the same screen will appear, with two changes:

1. The first two fields are displayed, but all changes are locked out.
2. The bottom line changes to:

```
<Turn It Off><Turn Off-Ignore Changes>
```

If SOFT KEY 1, <Turn it Off>, is pressed at this time, the edit loop will be turned off, returning the sequence to its normal operation. However, if SOFT KEY 2, <Turn Off- ignore changes>, is pressed, the loop is turned off, but all changes made while the loop was on are not used and the sequence returns to its status before the loop was turned on. In either case, the EDIT LOOP light is turned off and the PLAY/RECORD screen is returned to.

4.5.1 Using EDIT LOOP as an "UNDO" function

Because the EDIT LOOP function allows you the option to ignore all recording and editing which was done while the EDIT LOOP was on, it serves very well as an UNDO function.

For example, if you want to record a drum fill on bar 4 of a 4 bar sequence, but you aren't sure if you want to keep it, simply following these steps will allow you to try it first, then restore the sequence back to its original state if you don't like it:

1. Fast forward to bar 4;
2. Press EDIT LOOP;
3. Set the NUMBER OF BARS field to 1;
4. Press SOFT KEY 1, <Turn Loop On>, which will turn the EDIT LOOP on— now bar 4 will repeatedly play in a loop;
5. Overdub your drum fill;
6. Press EDIT LOOP again;
7. If you didn't like how the fill sounded, press SOFT KEY 2, <Turn it off - ignore changes>, and the sequence will return to its original state. If you want to keep it, press <Turn it off> (soft key 1) and the sequence will now contain the new drum fill.

4.6 The TRANSPOSE key

This function allows you to transpose a track up or down by a
specified amount in real time. This function is only a temporary
change — the sequence data is not altered, unless SOFT KEY 1,
<Transpose Permanent>, is pressed. Also, the ASQ10 knows not to
transpose "drums" tracks— only "non-drums" tracks can be
transposed. (See section 9, "Features related to drums" for more
information about this.)

```
============== Transpose ==============
Track(0=All): 0          Amount:  0
     (Play synth key to set amount)
========== Transpose Permanent =========
From:001.01.00          To:001.01.00

=======================================
<Transpose Permanent>
```

The following is a description of each of the screen fields and soft
keys:

• The TRACK(0=All) field:
The field specifies the track which will be transposed. Enter a "0"
here if you want all tracks to be transposed simultaneously.

• The AMOUNT field:
This field sets the amount and direction of transposition. For
example, to transpose up a fifth, enter a 7. To transpose down a
fourth, turn the DATA CONTROL to the left until "-5" appears.
However, a much faster way to set this field is to simply press a key
on the midi keyboard— the amount will be automatically set by the
location of the key in relation to middle "C". For example, pressing
a key one octave below middle "C" would set the direction field to "-
12". If the amount field is set to any value other than "0", the
transpose light will go ON, indicating that the transpose function is
active. It will turn OFF when this field is returned to "0".

• The FROM and TO fields:
These two fields specify the start and end of the region to be
permanently transposed when the <Transpose permanent> soft key
is pressed. These are BAR.BEAT.CLOCK type fields.

• SOFT KEY 1 — <Transpose Permanent>:
Pressing this soft key causes the above specified transposition to be
made permanent by actually changing each of the midi note
numbers within the specified region of the sequence. After this
operation, the AMOUNT field is reset to "0" and the transpose light
goes off.

Transposing in real time while playing

To transpose a sequence in real time while playing, follow these steps:

1. Play the sequence;
2. Press the TRANSPOSE key;
3. Locate middle "C" on the midi keyboard. Pressing any key above middle "C" will instantly transpose the sequence up by an amount equal to the distance the key is from middle "C". Pressing any key *below* middle "C" will instantly transpose the sequence down by the distance the key is from middle "C". When you press the key, it will only be used to transpose— the note will not sound. Be sure to press the key immediately before the instant at which you want the transpose to occur. To remind you that your sequence is being transposed, the light above the TRANSPOSE key will go on.
4. To return to the original key signature, press middle "C".
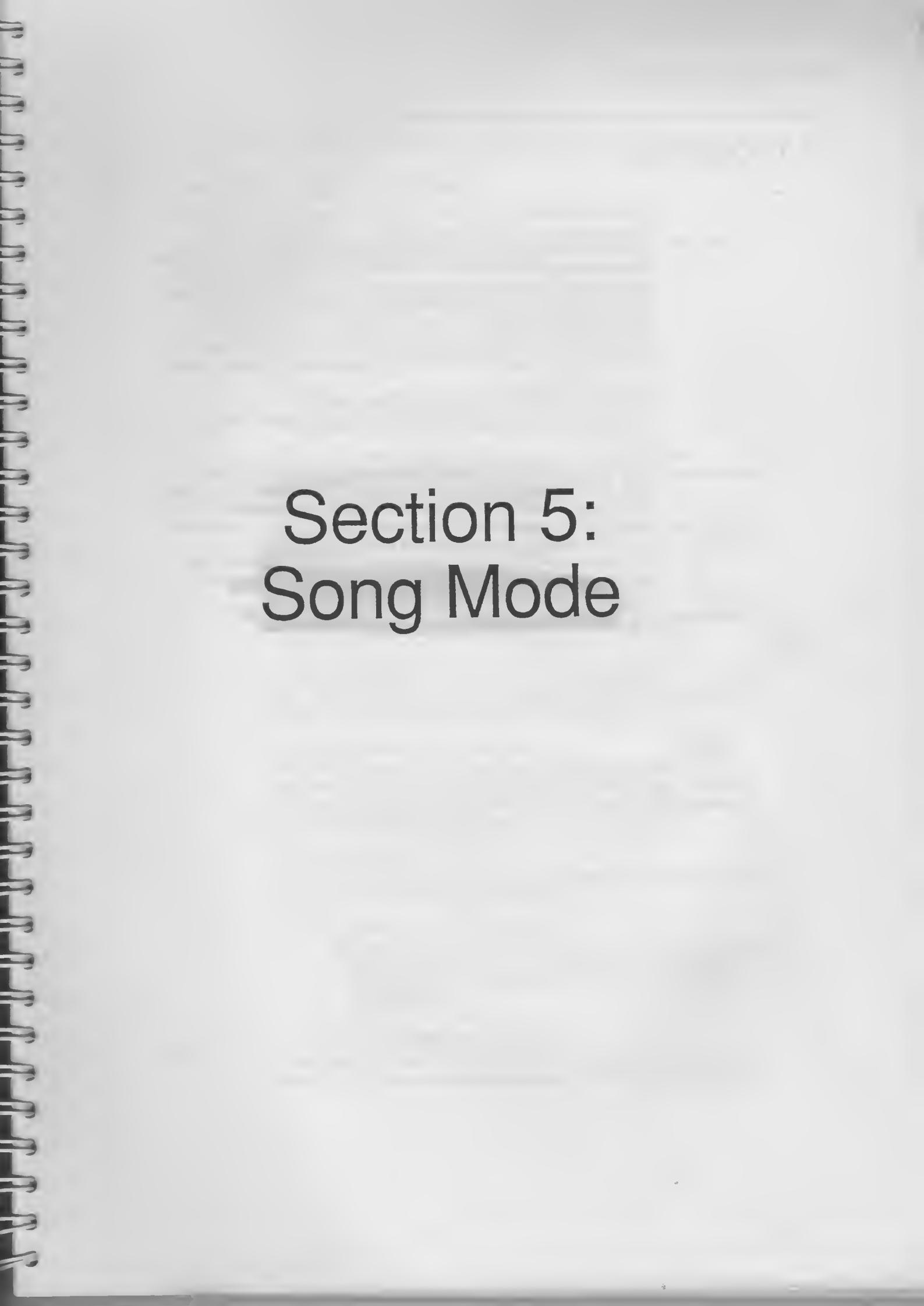
Section 5:
Song Mode

5.1 Overview

One way to create a song in the ASQ10 is to record all the parts in one long sequence, using the copy functions to duplicate repeating sections. Another way is use SONG MODE. In song mode, a number of sequences are entered into a list, each representing a different section of the whole song. Once the entire list is entered, song mode automatically plays the list of sequences in the order they were entered. This is especially useful in creating arrangements with many repeating sections, such as drum parts. Song mode has the following advantages over using a long sequence to record a song:

• The song structure can be created very quickly.
• The content of the sections of the song can be changed very quickly.

Technically, a "song" in the ASQ10 consists of up to 256 "steps", each of which contains a sequence number and the number of times it will repeat before going on to the next step in the song. After the last step, the song may either stop playing or loop back to an earlier step. The ASQ10 may hold up to 20 songs in memory at one time. Recording is not permitted in song mode. Instead, the individual sequences must be recorded or edited while in PLAY/RECORD mode.

5.2 The Song Mode screen

To enter song mode, press the SONG MODE key. The following
screen will appear:

```
=============== Song mode ===============
Song: 1-(unused)        Loop:TO STEP   1
Song starts at SMPTE#:00:00:00:00.00
========= Contents of step:  2 =========
Sqnc: 1-(unused)        Reps(0=end): 1
Bars: 4                 Tempo:120.0 BPM
===== Now:001.01.00 (00:00:00:00) ======
<InsertB4>  <Delete>   <Step-1>   <Step+1>
```

While this screen is showing, the ASQ10 is in SONG mode,
meaning that if play is entered, the active song will play instead of
the active sequence.

All of the PLAY/RECORD keys operate on the active song: PLAY
START plays the active song from the start; PLAY plays the active
song from the current contents of the NOW field; and "<<", "<",
">", ">>", and LOCATE change the position within the song.

A detailed description of each of the on-screen fields and soft keys is
given below:

• The SONG field:
This field selects the current song number (1 - 20). There are 20
songs, each containing a unique list of 256 steps.

• (The song name field — untitled):
This field has no title but exists directly to the right of the song
number. It is the 16 character name for the active song. Changing
the song name is done in the same way as changing the sequence
name in the Play/record screen.

• The LOOP field:
This field indicates what will occur when the current song plays all
the way to its end. There are two options:

    1. OFF : The song stops playing.
    2. LOOP TO STEP 1: The song loops back to the step number
       shown directly to the right of the word STEP. This step
       number may be changed by moving the cursor to it and
       changing it.

• The SONG STARTS AT SMPTE# field:
This 5 part field sets the SMPTE number associated with the exact
beginning of the song. Sometimes called "SMPTE offset", this is the

SMPTE number which, when syncing to SMPTE, is assigned to the exact beginning of the song. Normally, this is set to all zeroes.

• The CONTENTS OF STEP field:
This is the current step number (1 - 256) within the current song. The data displayed below this field is the data contained within this step number.

• The SQNC field:
This field indicates the sequence number contained in the current step. Directly to the right is the selected sequence's 16 character name.

• The REPS(0=END) field:
This field indicates the number of the repetitions the sequence number in the current step will play before moving on to the next step. For example, if you want the sequence to play only once in the current step, a "1" should be entered here. If a "0" is entered here, the ASQ10 will recognize this step as the end of the song, and either stop playing or loop to a previous step number, depending on the settings of the END and LOOP fields.

• The BARS field:
This field shows the total number of bars in the selected sequence.

• The TEMPO field:
This field shows the sequence tempo (the tempo value stored within the sequence— not the master tempo) of the selected sequence.

• The NOW field:
This has nearly the same effect as in the PLAY/RECORD screen, except that in song mode this number refers to the current position within the SONG, not the sequence.

• SOFT KEY 1 — <Insert B4>:
Pressing this soft key enables a new step to be inserted immediately before the current step. It copies the contents of the current step and all higher numbered steps up by one step, allowing the current step to be used for the new data without overwriting any existing data.

• SOFT KEY 2 — <Delete>:
Pressing this soft key deletes the contents of the current step and copies all higher numbered steps down by one position to close the gap.

• SOFT KEY 3 — <Step-1>:
Pressing this soft key decrements the step field.

• SOFT KEY 4 — <Step+1>:
Pressing this soft key increments the step field.

5.3 An example of creating and playing a song

The following is an example of creating a song in song mode on the ASQ10:

1. Record a simple 2 bar musical phrase into sequence 2, sequence 7, and sequence 12.

2. Enter SONG MODE by pressing the SONG MODE key.

3. Set the CONTENTS OF STEP field to 1, which sets the current step to 1.

4. Type 2 (ENTER) in the SQNC field, indicating you want sequence 2 to play at the start of the song.

5. Type 4 (ENTER) in the REPS field, indicating you want sequence 2 to repeat 4 times before completing step 1.

6. Press <Step+1> to move on to step 2.

7. Enter a 7 in the SQNC field and a 1 in the REPS field, indicating you want sequence 7 to play only once as the contents of step 2.

8. Press <Step+1> to move on to step 3.

9. Enter a 12 in the SQNC field and a 2 in the REPS field, indicating you want sequence 12 to play twice as the contents of step 3.

10. Press <Step+1> to move on to step 4.

11. Enter a "0" in the REPS field, indicating this is the end of your song. If a "0" already exists here, there is no need to enter it again.

12. Select the TO STEP 1 option in the LOOP field and enter a 2 to the right of the word STEP, indicating that you want the song to loop back to step 2 once it reaches its end.

13. Press PLAY START. The song will play back as entered:

> First, it will play 4 repetitions of sequence 2;
> next, it will play 1 repetitions of sequence 7;
> next, it will play 2 repetitions of sequence 12;
> after that, it will repeat steps 2 and 3 indefinitely.

Notice that the NOW field always indicates the position within the song, not the position within each sequence.

14. To return to the Play/record screen, press the MAIN SCREEN key.

NOTE: Occasionally you may see the "Analyzing sequence. Please wait..." message on the lowest line of the screen, requiring you to wait briefly while the ASQ10 does some "thinking". This occurs after you make any changes in the song, but only if the song contains a large number of different sequences. This waiting time is normal and is necessary in order for the ASQ10 to create what programmers call an "index table" for the newly edited song. Once this process is done, all subsequent FAST FORWARD, REWIND, and LOCATE operations will be immediate, as well as all responses to incoming SMPTE, SONG POSITION POINTER, or MIDI TIME CODE sync signals.

Converting a song into a long sequence:

While song mode is very useful for quickly creating a song format, it can be very cumbersome for detailed editing, because of the constant switching back to sequence mode, the necessity of copying sequences, and the necessity of remembering which sequence plays at which step. For detailed editing, it is much easier to record your song into one long sequence instead of using song mode, but song mode is very useful for quickly assembling the basic arrangement of a song.

The ASQ10 has a feature which allows a song to be automatically converted into one long sequence. This feature actually copies all sequences in each step end-onto-end into one long sequence. This allows you to quickly construct a song using song mode, then convert it to a sequence for detailed editing using the much more versatile sequence editing features. This feature is accessed by pressing the EDIT key and selecting option 8: CONVERT SONG. This is described in detail within the "Editing sequences" section of this manual.

Section 6:
Saving to and
loading from disk

6.1 Overview

The ASQ10 has a built-in 3 1/2" disk drive for storage of sequences and songs. This section describes the procedure for saving and loading files. Since the ASQ10 loses all sequence data when the power is removed, it is important to always save any changes to disk before turning the power off.

The three different file types:

All sequences are stored to disk in things called "files". All disk files in the ASQ10 use a 16 character file name, which you assign to the file when it is saved to disk. In addition, there is a three letter "file extension" which is used to differentiate file types. The three types of files (and file name extensions) are:

1. "SAMPLE_FILE_NAME.SEQ": This file contains a single sequence.
2. "SAMPLE_FILE_NAME.ALL": This file contains all 99 sequences and all 20 songs.
3. "SAMPLE_FILE_NAME.PAR: This file contains all settings which are normally retained with power removed but which are not saved within any other file.

Before proceeding, here are a few important points to be aware of:

• When new disks are purchased, they are not formatted. Before using the disks, you MUST format each one using the FORMAT DISK option from the disk menu.
• The 3 1/2" disks used in the ASQ10 should be DOUBLE SIDED only, as SINGLE SIDED disks may cause disk errors.
• NEVER REMOVE A DISK FROM THE DISK DRIVE WHILE THE LIGHT ON THE FRONT OF THE DRIVE IS ON!

To access the disk functions, press the DISK key and the following screen will appear:

```
================ Disk ===================
1)Save a sequence   2)Save all seqs/songs
3)Save parameters   4)Load/erase/rename
5)Format disk       6)Copy a disk



Select option:
```
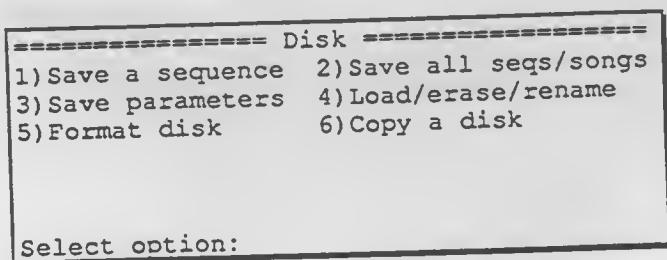
This screen displays a list of disk options. To select one, type the number of the desired option. Each of the options are described in detail in the following sections.

6.2 Saving a sequence

This function saves a single sequence to a disk file, called a
"sequence" file (the 3 letter file extension is "SEQ"). From the disk
menu screen, type 1 to select SAVE SEQUENCE and the following
screen will appear:

```
============= Save Sequence =============
Select Sequence to Save:
00-EXAMPLE                  Size:    1K
Disk space available  (bytes):   24K


=========================================
<Save it to disk>
```

To save a sequence file:

1. Select the sequence number to be saved using the SELECT
SEQUENCE TO SAVE field. The active sequence is automatically
inserted here when this screen is first displayed. The disk file
name will be created from the sequence name. There are two on-
screen fields to determine whether there is enough space on disk to
save the file: SIZE and DISK SPACE AVAILABLE. SIZE displays
the size (in bytes) of the selected sequence; DISK SPACE
AVAILABLE displays the available space (in bytes) on the disk
currently inserted in the disk drive. The sequence size should be
smaller than the disk space available for the file to fit on the disk.

2. Press SOFT KEY 1, <Save it to disk>, to save the sequence file to
disk. The file extension of sequence files is "SEQ". After the file is
saved, the first disk menu is re-displayed.

6.3 Saving all sequences and songs

This function saves all 99 sequences and all 20 "songs" to disk in one file, called an "All" file (the 3 letter file extension is ".ALL"). From the disk menu screen, type 2 to select "SAVE ALL SEQS/SONGS" and the following screen will appear:

```
====== Save all sequences & songs ======
Name "ALL" file to Save:
ALL_SEQS                    Size:    1K
Disk space available  (bytes):   24K


==========================================
<Save it to disk>
```

To save an "All" file:

1. Assign the 16 character name for the "All" file to be saved. To name the file, use the same method as used to name sequences:

> A) Rotate the DATA CONTROL one step in either direction to change the alphabetic keys to their letter functions.
> B) Type in the new name, followed by ENTER.

There are two on-screen fields to determine whether there is enough space on disk to save the file: SIZE and DISK SPACE AVAILABLE. SIZE displays the size (in bytes) of the "All" file; DISK SPACE AVAILABLE displays the available space (in bytes) on the disk currently inserted in the disk drive. The "All" file should be smaller than the disk space available for the file to fit on the disk.

2. Press SOFT KEY 1, <Save it to disk>, to save the sequence file to disk. The file extension of "All" files is ".ALL". After the file is saved, the first disk menu is re-displayed.

6.4 Saving a Parameter file

The settings of most of the ASQ10"s data fields which are not
normally saved to disk are retained after power is removed, so that
you don't have to set them again every time you turn the power on.
This function allows you to save a special file called a "Parameter
file" (file extension: "PAR") which contains the current settings of
these data fields.

The following is a list of the data fields which are retained after
power is removed, and which are saved within parameter files:

   (Play/record screen)
   • Solo mode on/off
   • 8 character names for all 64 midi channels

   (Locate screen)
   • Markers A, B, and C

   (Tempo screen)
   • Tempo source select
   • Master tempo
   • BPM/FPB
   • Frames/sec
   • Tap averaging

   (Sync screen)
   • Sync input mode
   • Shift sync early
   • Midi input select
   • 1/4 note click sync starts at current bar / bar 1
   • Sync output mode fsk24/pulse96
   • Midi clock output 1/2/3/4/off

   (Generate SMPTE screen)
   • Starting SMPTE number

   (Mid-sequence tempo changes)
   • Tempo changes on/off

   (Create new sequence screen)
   • Time signature
   • Number of bars
   • Loop on/off
   • Loop bar
   • Tempo
   • Midi channel, output port assignments for 99 tracks

(Step edit options screen)
• Event to be inserted
• Auto step increment on key release on/off
• Duration of recorded notes
• Display filter settings for all midi events and all 128 midi controllers

(Midi key)
• Midi input filter: "Pass event" and "Min change" settings for all midi events and controllers
• Velocity mode normal/fixed
• Fixed velocity
• Midi soft thru on/off
• Default channel
• Sustain pedal processing on/off

(Drums key)
• 128 assignments for incoming note numbers to drums
• 128 assignments for outgoing drums to note numbers
• Midi channel for drums
• Send mix/tune changes over midi on/off
• Controller number for hihat decay

("Other" screen)
• Click volume, rate, click in play on/off
• Foot switch 1 and 2 assignments

(2nd sequence screen)
• 2nd sequence number

(Auto punch screen)
• Auto punch in, out
• Last punch in, out

(Erase screen)
• Erase filter settings for all midi events and all 128 midi controllers

(Timing correction screen)
• Note value
• Shuffle
• Shift timing (later/earlier)
• Shift amount

Select option 3 from the disk screen to display the SAVE PARAMETER FILE screen:

```
========== Save parameter file ==========
Name "PAR" file to save:
PARAMS                        Size:2K
Disk space available (bytes):701K


=================================================
<Save it to disk>
```

To save a parameter file:

1. Assign the 16 character name for the parameter file to be saved.
To name the file, use the same method as used to name sequences:

> A) Rotate the DATA CONTROL one step in either direction
> to change the alphabetic keys to their letter functions.
> B) Type in the new name, followed by ENTER.

There are two on-screen fields to determine whether there is enough
space on disk to save the file: SIZE and DISK SPACE AVAILABLE.
SIZE displays the size (in bytes) of the file; DISK SPACE
AVAILABLE displays the available space (in bytes) on the disk
currently inserted in the disk drive. The parameter file should be
smaller than the disk space available for the file to fit on the disk.

2. Press SOFT KEY 1, <Save it to disk>, to save the sequence file to
disk. The file extension of parameter files is "PAR". After the file
is saved, the first disk menu is re-displayed.

6.5 Loading, erasing or renaming files

This function is used to either view, load, erase or rename any files on the currently inserted disk. In the case of a load, depending on the file extension, subsequent screens will guide you to load the file into the proper place.

From the disk screen, type 4 to select LOAD/ERASE/RENAME and the following screen will be displayed:

```
=========== Load/View Files ===========
Select file, then press <Load file>:
File:EXAMPLE.ALL        Size:    1K
========================================
Sequence memory available (bytes):   3K


========================================
<Load it><Erase it><Rename it>
```

To select a file for either loading, erasing or renaming, use the DATA CONTROL. For each click of the DATA CONTROL, a different file from an alphabetical list of files on the disk will be displayed in the FILE field, with its size (in bytes) displayed in the SIZE field. In the lower half of the screen are two fields showing the available memory in both the sequence memory and the sound memory. By comparing the file size to the available memory, you will be able to see if there is enough space available to load the selected file.

Loading files:

• If a SEQ file is selected and <Load it> is pressed, the following screen will be displayed, asking you to select the sequence number to load the file into:

```
====== Load a sequence file (.SEQ) =====

Sequence number to load into: 1



<Load file>
```

Select the sequence number to load the file into, then press <Load file>. After the file is loaded, the previous screen is re-displayed.

• If an ALL file is selected and <Load it> is pressed, the following
screen will be displayed, warning you that all sequences and songs
currently in memory will be erased:

```
==== Load all seqs and songs (.ALL) ====

This will erase all sequences and songs
currently in memory!



<Load file>
```

Press <Load file> to load it. Once finished, the previous screen will
be re-displayed.

• If a parameter file is selected and <Load it> is pressed, the
following screen will be displayed,

```
===== Load a Parameter File (.PAR) =====

This will replace all existing system
parameters! (These are the parameters
which are normally retained while power
is off.)
=========================================
<Load file>
```

As the screen warns, loading this file will replace all existing
system parameters with the newly loaded file"s settings. To load the
file, press <Load it>. After loading, the previous screen will be re-
displayed.

Erasing files

• If <Erase it> is pressed, the following warning screen is
presented, asking you to verify that you want to erase the selected
file:

```
============== Erase a file  =============

Erase the file:MY_SONG.SEQ ?



<Erase it>
```

If you are sure, press <Erase it>, and the file will be erased permanently from the disk. Once erased, the previous screen is re-displayed.

Renaming files

• If <Rename> is pressed, the following screen is displayed:

```
============ Rename a file ============

Rename the file:MY_SONG_.SEQ
to the new name:MY_SONG_.SEQ



<Rename it>
```
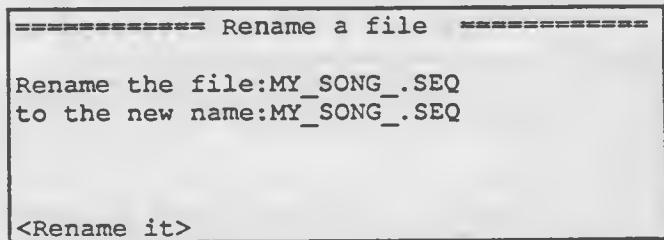
The upper line shows the current name of the file. The cursor rests in the lower line, waiting for you to enter the new name. To enter the new name, use the same method as in naming a sequence:

1. Turn the DATA CONTROL one step to change the alphabetic keys to their letter functions.
2. Type in the new 16 character name, followed by ENTER.

Once the new name has been entered, press <Rename it>. The file name on the disk will be changed to the newly entered name. Once complete, the previous screen is re-displayed.

NOTE: If you rename a "SEQ" file, then load it into one of the 99 sequences, the original sequence name (in the sequence name field) will NOT have changed. Only the disk *file* name is changed by the rename process— the internal sequence name remains unchanged. For this reason, if you want to rename a sequence file, it is better to load the file into memory then change its name while in memory (using the sequence name field), then save the renamed sequence back to disk.

6.5.1 Files which automatically load on power-up

It is possible to create an ALL file (all sequences) which automatically loads into memory when the power is turned on.

To auto-load a ALL file, you must change its name to "SYSTEM.ALL", then insert the disk containing this file into the drive before turning the power on. When power is applied, the ASQ10 searches the inserted disk for a file of this name and if it finds it, it loads only this SYSTEM.ALL file.

6.6 Formatting a disk

This function is used to format a new disk or to completely erase an existing disk. ALL DISKS MUST BE FORMATTED BEFORE THEY CAN BE USED IN THE ASQ10! To use this function, from the disk screen, type a 5 to select the FORMAT DISK option, and the following screen will appear:

```
=============== Format disk =============

(This will erase the entire disk!)



=========================================
<Format it>
```
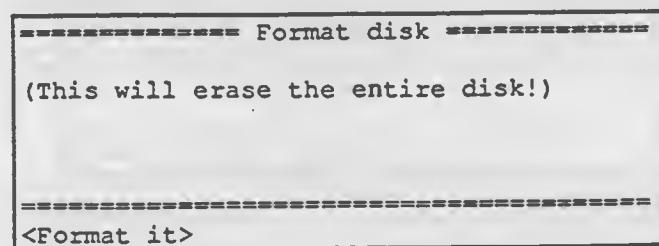
To format the disk currently in the drive, press <Format it>. This will take about 1 1/2 minutes. Once complete, the previous screen will be re-displayed. It is a good idea to format a large number of disks and set them aside to have them ready when you need them. Otherwise, every time you want to save a file to a new disk, you must first take the time to format the disk.

6.7 Copying an entire disk

This feature permits an entire ASQ10 disk to be copied. This provides an easy way to backup your data disks. To copy a disk, have both your original disk and a blank formatted disk available and select option 6 from the disk menu. The following screen will appear:

```
============== Copy a disk =============
THIS WILL ERASE ALL SEQUENCES IN MEMORY!
Are you sure you want to copy a disk?


=========================================
<Yes, proceed>
```

The disk copy function requires the use of the sequence memory and therefore will erase all existing sequences before making the copy. Press <Yes, proceed> to proceed with the copy and the following screen will appear:

```
============== Copy a disk =============
Insert disk to be copied FROM, then
press <Proceed>.


=========================================
<Proceed>
```

When you see this screen, insert the original disk in the disk drive and press <Proceed>. The bottom line will then display the message "Copying source disk. Please wait...". When it has copied as much as it can fit in memory, it says:

```
============== Copy a disk =============
Insert disk to be copied TO, then
press <Proceed>.


=========================================
<Proceed>
```

Now, remove the original disk and insert the blank formatted disk, then press <Proceed>. The bottom line will change to "Writing to destination disk. Please wait...". If all the disk data has not been copied, the cycle of inserting the source, then the destination disks will be repeated until all data is copied. When finished, the DISK menu will be re-displayed.

6.8 "Attention" messages encountered during disk operations:

There are a number of special "Attention" screens which will appear during disk operations if either the operator is doing something incorrect, or an error is detected on the disk. Here is an example:

```
============== Attention! ==============

  This disk is either not formatted or
  is bad. Either format it or use a
  different disk. (Error# 30CD)


<Cancel>
```
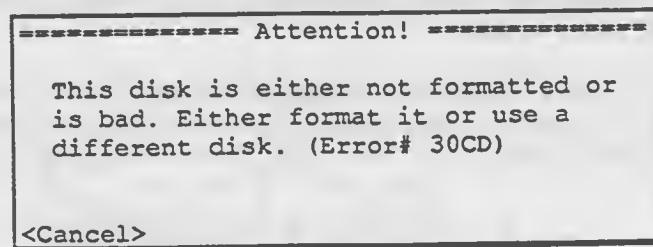
When an "Attention" screen such as this is displayed, the current operation is suspended, awaiting an action from the operator. In each case, the problem is described, a suggested solution is given, and a special technical error code is given (This is to help the service technician over the phone, should a problem arise). Also, one softkey usually exists to allow a path to proceed.

6.9 The "Save warning" light (above the DISK key):

Whenever you record or edit a sequence or song, the light above the DISK key will go on to warn you that if you don't save these changes to disk before turning the power off, you will lose them.

Once you save to disk whatever you have changed, the DISK light will automatically go off, indicating that the changes have been safely saved to disk.

NOTE: If you would like to manually turn the light off without saving the changes, press the DISK key and type a 7. This will turn the light off, even though this option is not printed in the disk menu.

Section 7:
Syncing to tape
and other devices

7.1 Overview

This section encompasses all functions in the ASQ10 which are related to syncing to tape or other devices. In this section, you will learn to:

- Use the SYNC screen.
- Write and sync to SMPTE time code.
- Sync to Midi Clock signals.
- Sync to Midi Time Code.
- Sync to FSK and PULSE sync codes.
- Sync to 1/4 note clicks.

7.2 The SYNC screen

To access the SYNC screen, press the SYNC key. The following
screen will be displayed:

```
========= Sync input settings ==========
Mode:OFF



========= Sync output settings =========
Mode:FSK24                Midi clock:OUT4
<GenSMPTE>
```

This screen presents all parameters related to syncing to tape or
external devices. However, additional data fields will appear in the
SYNC INPUT SETTINGS section depending on the selected sync
input mode (the MODE field in the second line of the screen). In the
above example, the MODE field is set to OFF, indicating that the
ASQ10 is ignoring all types of incoming sync signals. This field is
a choice field and has 7 options besides OFF, and each one presents
additional on-screen fields.

Here is the screen which is displayed when the MODE field is set to
SMPTE:

```
========= Sync input settings ==========
Mode:SMPTE
Sequence starts at SMPTE#:00:00:00:00.00
SMPTE accuracy:EXACT

========= Sync output settings =========
Mode:FSK24    .           Midi clock:OUT4
<GenSMPTE>
```

The following screen is displayed if MIDI TIME CODE is selected
in the MODE field:

```
========= Sync input settings ==========
Mode:MIDI TIME CODE
Sequence starts at SMPTE#:00:00:00:00.00
SMPTE accuracy:BEFORE V2.0     Midi in:2

========= Sync output settings =========
Mode:FSK24                Midi clock:OUT4
<GenSMPTE>
```

If MIDI CLOCK is selected in the MODE field, the following screen
is displayed:

```
========= Sync input settings =========
Mode:MIDI CLOCK
Shift sync early(ms): 0   Midi in:2


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

If MIDI CLOCK W/SONG POINTER is selected in the MODE field, the following screen is displayed:

```
========= Sync input settings =========
Mode:MIDI CLOCK W/SONG PNTR
Shift sync early(ms): 0   Midi in:2


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

If FSK24 is selected in the MODE field, the following screen is displayed:

```
========= Sync input settings =========
Mode:FSK24
Shift sync early(ms): 0


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

If PULSE96 is selected in the MODE field, the following screen is displayed:

```
========= Sync input settings =========
Mode:PULSE96
Shift sync early(ms): 0


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

Finally, if 1/4 NOTE CLICKS is selected in the MODE field, the following screen is displayed:

```
========= Sync input settings =========
Mode:1/4 CLICKS
Shift sync early(ms): 0
1/4 click sync starts at:CURRENT BAR

========= Sync output settings =========
Mode:FSK24              Midi clock:OUT4
<GenSMPTE>
```

All of the data fields in each of the screens are described below:

• The MODE field (in the SYNC INPUT SETTINGS section of the screen):
This field is used to select the type of sync signal for the ASQ10 to receive sync from an external device or tape. There are seven possible types of sync which the ASQ10 will accept, but only one may be active at one time.

Further, whichever type of sync is selected, the ASQ10 always stands ready to receive sync- it does not need to be switched into a "sync ready" mode. As soon as it receives a sync signal from the selected source, it automatically enters play mode. The only time that it ignores external sync signals is when play mode has been manually entered by pressing PLAY on the front panel, but once STOP is manually pressed, the ASQ10 once again stands ready to receive sync.

The seven possible types of sync which the ASQ10 may accept are listed below. This field is used to select which one of these signals is currently active:

   1. FSK24:
   This is a standard general purpose tape sync code commonly used in drum machines and sequencers. It stands for "Frequency Shift Keying at 24 2400 Hz/1200 Hz transitions per 1/4 note". This code contains no location information, so when syncing to it, you must start both devices from the beginning of the song in order for them to play in sync. Because of this, the ASQ10 always plays from bar 1 when sync is first received, if this sync setting is selected. This code does contain tempo information, so the ASQ10's tempo settings are not used when syncing to FSK.

   2. PULSE96:
   This signal is not very common and is used when syncing to other devices only — not for tape sync. It stands for "Pulse sync at 96 high/low transitions per 1/4 note". This is the internal clock resolution of the ASQ10. This code contains no location information, so when syncing to it, you must start both devices from the beginning of the song in order for

them to play in sync. Because of this, the ASQ10 always plays from bar 1 when sync is first received, if this sync setting is selected. This code does contain tempo information, so the ASQ10's tempo settings are not used when syncing to PULSE96.

3. SMPTE:

This is SMPTE time code. It may be sent from tape or from other devices. SMPTE time code is a standard sync code used both in video/film and music. It has the advantage over FSK24 of containing location information in the code. That means, for example, that when you play your tape recorder starting at the third verse of a song, the ASQ10 will automatically start playing from the third verse in perfect sync- it does not need to start at the beginning to play in sync. Also, SMPTE time code contains no tempo information, so when syncing to SMPTE, the ASQ10's tempo settings are used— the difference is that when syncing to SMPTE, the ASQ10's tempo setting is synced to the incoming SMPTE code, instead of being synced to the internal crystal clock as when manually played. So when syncing to SMPTE, always use the same tempo setting on each pass. To make this easier, use the SEQUENCE tempo mode which is stored with the sequence disk file.

4. MIDI TIME CODE:

Midi Time Code is SMPTE time code sent and received over midi. This is a new code which is becoming very popular because it allows the advantages of SMPTE without the cost of SMPTE hardware. Incoming Midi Time Code is treated exactly the same as SMPTE. The only difference is that Midi Time Code cannot be recorded on tape, so it is only useful for syncing to other devices. However, there are conversion boxes available which convert SMPTE to Midi Time Code and vice versa.

5. MIDI CLOCK W/SONG PNTR:

This is an abbreviation for "Midi Clock with Song Position Pointer". This is a sync signal sent over midi which is very common with drum machines and sequencers. Since it is sent over midi, it cannot be used with tape, but is very useful in syncing to other sequencing devices. Since this signal contains location information, you don't need to start both devices from the beginning of the song in order for them to play in sync. For example, when you play your external drum machine starting at the third verse, the ASQ10 will automatically start playing from the third verse in perfect sync. Of course, in order for the ASQ10 to receive the Song Position Pointer messages, the external sequencing device must be sending them. When using this sync mode, please check to see that the external device is capable of sending these messages, and is enabled to do so.

6. MIDI CLOCK:
This is the same as "MIDI CLOCK W/SONG PNTR" above, except that the "Song position pointer" signals are ignored. This setting would be rarely used.

7. 1/4 NOTE CLICKS:
In the event that no sync signal exists on tape, this feature allows the ASQ10 to sync to standard 1/4 note metronome clicks. To smooth out any variations in tempo, the playback is averaged over time. It is possible for the ASQ10 to follow slight tempo changes, but larger changes will cause it to temporarily lag behind or lead. It is possible to use any clean signal instead of metronome clicks, but the signal used must be very distinct and short, such as a cowbell or closed hihat, and there must be a minimum of background noise. Adjusting the sync input level control will help to minimize triggering from background noise. Since 1/4 note clicks contain no position information, the first click received will cause the ASQ10 to immediately start playing from the start of the sequence. However, it is also possible to set the ASQ10 so that the first click received starts the sequence from a pre-determined bar number. This is described in the description of the 1/4 CLICKS START AT field.

There is an eighth setting, OFF, which disables all syncing to external sources.

• The SEQUENCE STARTS AT SMPTE# field (appears in SMPTE and MIDI TIME CODE modes only):
This field is used to set the incoming SMPTE time number which must be received in order for bar 1 of the sequence to start playing. Once the ASQ10 knows which incoming SMPTE number plays bar 1, it will automatically calculate the proper point within the sequence to start playing when higher SMPTE numbers are received, and it will know not to play anything if a SMPTE number is received which is before or after the song. This field has five parts, separated by colons (":"). The parts are:

HOURS:MINUTES:SECONDS:FRAMES.SUBFRAMES

"Frames" are the individual film or video frames. Depending on which of the four types of SMPTE code is being received, there are either 24, 25 or 30 frames per second. "Subframes" are subdivisions of 1/100 frame, used for very fine adjustment. At 30 frames per second, each subframe is equal to 1/3 of one millisecond.

NOTE: This setting applies <u>only to the active sequence</u> — if you change the active sequence and return to this screen, the newly selected sequence's SMPTE start number will now appear in this

field. This setting is stored with the active sequence when it is saved to disk.

• The SHIFT SYNC EARLY(MSECS) field (appears in all modes except SMPTE and MIDI TIME CODE):
This field is used to compensate for any sync delays or delays produced by slow synthesizer attacks. It accomplishes this by shifting the ASQ10's playback earlier by a specified number of milliseconds. If the sync playback appears to be late, adjust this field until the sync playback is exactly on time. This setting works regardless of which of the 7 sync modes is active.

• The MIDI IN field (appears in MIDI TIME CODE, MIDI CLOCK, and MIDI CLOCK W/SONG PNTR modes only):
This field is used to select which of the two midi inputs will be used to receive the midi sync signals, input 1 or input 2. Normally, input 2 is used so that input 1 may be used simultaneously to receive midi keyboard data.

• The 1/4 CLICKS START AT field (appears in 1/4 NOTE CLICK mode only):
This field is a choice field and has two selections: BAR 1 and CURRENT BAR. It is only used when the sync input mode is set to 1/4 NOTE CLICKS and is used to determine whether the sequence will start playing from the start or from the start of the current bar when the first click is received. The two choices are:

1. BAR 1: The first incoming click will start the sequence playing from the start of the sequence (this is the default setting).
2. CURRENT BAR: The first incoming click will start the sequence playing the from the start of the current bar.

• The SMPTE ACCURACY field (appears in SMPTE and MIDI TIME CODE modes only):
This is a choice field and has 2 options:

1. EXACT:
For all future recordings, use this setting. It provides exact conversion of incoming SMPTE or MIDI TIME CODE numbers into the tempo settings used internally in the ASQ10.

2. BEFORE VERS 2.0:
Before version 2.0 software for the ASQ10, the internal SMPTE to tempo conversion was inaccurate by as much as 40 milliseconds after 5 minutes. This caused no problem when using only the ASQ10 for all sequenced overdubs to a

recording. However, when using the ASQ10 for some overdubs to SMPTE, and a different SMPTE to MIDI·CLOCK converter for other overdubs to SMPTE <u>on the same recording</u> (all at the same tempo), an inaccuracy would exist between the 2 units, causing them to gradually slip out of sync.

This inaccuracy problem has been corrected in version 2.0 software. However, it is necessary to be able to select the older inaccurate conversion method when working with older recordings in which an ASQ10 running software before version 2.0 was used to record parts in sync to SMPTE. If not, the new parts will gradually slip out of sync with the existing parts. For this reason, when adding parts to a recording in which existing tracks were already recorded by an ASQ10 running software before version 2.0 in sync to SMPTE, set the "SMPTE accuracy" field to "BEFORE VERS 2.0".

NOTE: Some existing devices which convert SMPTE to MIDI CLOCK signals have internal accuracy problems, including the Roland SBX-80. For this reason, when adding ASQ10 parts in sync to SMPTE to a recording in which existing tracks were already recorded using a different SMPTE to MIDI CLOCK converter (all at the same tempo), the ASQ10 parts will gradually slip out of sync with the existing parts. For this reason, it is a good rule to only use one SMPTE to MIDI CLOCK converter for all tracks of a recording. For example, if the SBX-80 was used on some tracks, use it for all tracks; if the ASQ10 was used for some tracks, use it for all tracks.

NOTE 2: The setting of this field only affects reading SMPTE— it has no effect on SMPTE generation. Further, the above stated inaccuracy problem never had any affect on SMPTE generation. Therefore, any SMPTE code generated by the ASQ10 at any time, regardless of software version, is perfect.

• The MODE field in the SYNC OUTPUT SETTINGS section (appears in all sync input modes):
This field is used to select which of two types of sync signals will be output through the SYNC OUT jack while the ASQ10 is playing. SMPTE time code is not output while the ASQ10 is playing, but rather only while stopped — this is explained further under the <GenSMPTE> soft key, below. There are two options for this field:

1. FSK24:
This is a standard general purpose tape sync code commonly used in drum machines and sequencers. It stands for "Frequency Shift Keying at 24 2400 Hz/1200 Hz transitions per 1/4 note". This code contains only timing clocks. It does not contain positioning information, so when syncing back from tape, you must start the ASQ10 from the

beginning of the song in order for it to play in sync. This code does contain tempo information, so be sure the ASQ10 is set to the intended tempo when recording this signal onto tape.

2. PULSE96:
This signal is not very common and is used for sync to other devices only — not for tape sync. It stands for "Pulse sync at 96 high/low transitions per 1/4 note". This is the internal clock resolution of the ASQ10. This code contains no location information, so you must set both the ASQ10 and the receiving device to the start of their sequences in order for both to play in sync. When an external device is syncing to the ASQ10, the tempo is controlled by the ASQ10.

• **The MIDI CLOCK field (appears in all modes):**
The "Midi clock with song position pointer" signal is output while the ASQ10 is playing. This field selects which of the four Midi outputs it will be output through. There are five options:

• **OUT1:**
It is outpu through midi output jack 1.
• **OUT2:**
It is output through midi output jack 2.
• **OUT3:**
It is output through midi output jack 3.
• **OUT4:**
It is output through midi output jack 4.
• **OFF:**
The midi clock signal is not generated at all.

• **SOFT KEY 1 — <GenSMPTE> (All sync input modes):**
Pressing this soft key displays the following screen, which is used to generate SMPTE time code:

```
============ Generate SMPTE =============
Start=00:00:00:00    Frames/Sec:30




 <Start>   <Stop>
```
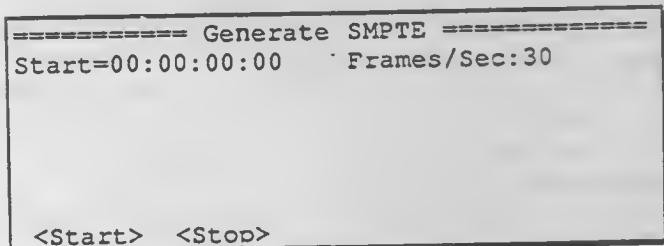
SMPTE time code is only generated while this screen is showing. It is not generated while the ASQ10 is playing. The actual code is output through the SYNC OUT jack. The fields and soft keys are described hereunder:

• The "START=" field:
This is the SMPTE time code number at which the generated time code will start. This is a HOURS:MINUTES:SECONDS:FRAMES field. Normally, this should be set to 00:00:00:00. While the SMPTE code is being generated (when <Start> is pressed), this field will continuously update to show the current time code number being output. When <Stop> is pressed, this field will re-display its starting value.

• The FRAMES/SEC field:
This field is used to select one of four types of SMPTE time code to generate.

> • "30" (30 frames per second, non-drop):
> This is the standard for NTSC black and white television. Using this mode, the tempo range of the ASQ10 is from 60.0 to 6.0 FPB. This is the most popular standard for SMPTE based music production in the U.S. and Japan, so to assure widest compatibility for your recordings, use this standard if you live in those areas.

> • "30 DROP" (30 frames per second, drop frame):
> This is the standard for NTSC color television. Using this mode, the tempo range of the ASQ10 is from 59.7 to 6.0 FPB.

> • "24" (24 frames per second):
> This is the standard for film. However, since film is usually transferred to video for scoring, the composer still works with 30 DROP. Using this mode, the tempo range of the ASQ10 is from 48.0 to 5.0 FPB.

> • "25" (25 frames per second):
> This is the standard for European television (PAL /SECAM standard). Using this mode, the tempo range of the ASQ10 is from 50.0 to 5.0 FPB. This is the most popular standard for SMPTE based music production in Europe and the U.K., so to assure widest compatibility for your recordings, use this standard if you live in those areas.

This field has the same function exactly as the similarly labeled field in the tempo screen.

• SOFT KEY 1 — <Start>:
Pressing this soft key starts SMPTE generation.

• SOFT KEY 2 — <Stop>:
Pressing this soft key stops SMPTE generation.

7.3 Syncing to SMPTE

Of the seven types of signals which the ASQ10 can sync to, only three are used to sync to tape: SMPTE, FSK24 and 1/4 NOTE CLICKS. Of these, SMPTE has the greatest advantages and should therefore be used as the standard method of tape sync for all new recordings using the ASQ10.

SMPTE time code may only be generated by the ASQ10 when it is not playing. Before recording your song to tape, record SMPTE time code onto one channel of the multi-track tape recorder.

To record the SMPTE track:

1. Connect the SYNC OUT jack of the ASQ10 to the input of a track of your multi-track tape recorder.
2. To access the GENERATE SMPTE screen, press the SYNC key, then the <GenSMPTE> soft key and the following screen will appear:

```
=========== Generate  SMPTE ==============
Start=00:00:00:00    Frames/Sec:30



============================================
 <Start>   <Stop>
```

3. Set the START fields to 00:00:00:00.
4. Set the FRAMES/SEC field to "30" (U.S. and Japan) or "25" (Europe and U.K.). The other types of SMPTE are used for specific purposes. If you are unsure of which type to use, check the above descriptions of each type to match it to your application.
5. To set the recording level, press <Start> (this will start the SMPTE generation), then set the recording level of the tape recorder to -3 dB.
6. Press <Stop> (this will stop the SMPTE generation).
7. Place the tape recorder in record mode.
8. Press <Start> to start generating SMPTE time code.
9. Wait until enough time has passed to allow for the total duration of your song, then press <Stop> (this will stop SMPTE generation) and stop the tape recorder.
10. Your tape now contains the SMPTE code.

To play back a sequence in sync to SMPTE:

1. Connect the output of the tape recorder track you have just recorded to the SYNC INPUT of the ASQ10.
2. From the PLAY/RECORD screen, select the sequence which you intend to record to tape.
3. Press the TEMPO key and the tempo screen will appear:

```
=============== Tempo ================
Tempo Source Select:SEQUENCE
Sequence:90.9        Master:120.0
=========== Display Mode ============
BPM/FPB:BPM             Frames/Sec:30
=============== Other ===============
Tap Averaging:3
<SyncScreen><TempoChngs>
```

4. Set the TEMPO SOURCE SELECT field to SEQUENCE. This causes the ASQ10 to use the tempo setting stored within the sequence, so that it will always be remembered even if the sequence is saved to disk and later recalled. It is important for the ASQ10 to remember the tempo setting because the SMPTE time code does not provide its own tempo.
5. Set the FRAMES/SEC field to the same frame rate as the SMPTE time code which is going to be received. If set to a different frame rate, the playing tempo will be inaccurate.
6. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings ==========
Mode:SMPTE
Sequence starts at SMPTE#:00:00:00:00.00
SMPTE accuracy:EXACT


========= Sync output settings =========
Mode:FSK24            Midi clock:OUT4
<GenSMPTE>
```

7. Move the cursor to the upper left field, MODEand select the option SMPTE.
8. Move the cursor to the SEQUENCE STARTS AT SMPTE# field and enter the number of the incoming SMPTE location you want your sequence to start at. If you don't know, use 00:00:10:00.00. This will cause your sequence to start at a location 10 seconds after the start of the SMPTE code you recorded in the example above. This will allow you to record some additional parts to that first 10 seconds if you later decide to. This setting only applies to the active sequence, so be sure that the sequence you intend to use is selected before setting this parameter.
9. Press the MAIN SCREEN key.
10. Set all levels to record the ASQ10 to tape.
11. Start the tape recorder recording from a point just before the beginning of the SMPTE time code. Once the time code has played for 10 seconds (if the SEQUENCE STARTS AT SMPTE#

field has been set to 10 seconds), the ASQ10 will automatically start playing from the beginning and will not stop until the sequence has completed. To stop it early, press the STOP key on the ASQ10.

12. Now, to overdub further parts onto the tape in sync, just play the tape recorder at any point within the sequence and the ASQ10 will automatically start playing from the correct location within the sequence in perfect sync.

13. To shift the playback earlier or later by any amount, adjust the SEQUENCE STARTS AT SMPTE# field to an earlier or later location.

NOTE 1: If the ASQ10 doesn't respond to the sync signal, try adjusting the SYNC INPUT LEVEL control on the rear panel. Find the lowest setting at which the ASQ10 responds, then increase the level by about 1/4 turn.

NOTE 2: When playing a sequence from bar 1 in response to incoming SMPTE, the timing of the first note in bar 1 may be slightly late. To get around this problem, insert a blank bar at the start of the sequence (or song). This will cause the late timing to occur within the initial blank bar, so that the timing is stable well before the notes (starting in the second bar) start playing.

To play back a "Song" (Song mode) in sync to the SMPTE time code on tape:

To play back a "Song" in sync to the SMPTE signal, follow the above instructions, except select the SONG MODE screen before receiving the SMPTE signal. This way, the active song will play instead of the active sequence. To set the starting SMPTE number for the song, use the SONG STARTS AT SMPTE# field in the Song screen.

7.4 Syncing to FSK24

The ability to sync to FSK24 is provided to allow the ASQ10 to sync to recordings using sync signals created by machines using the FSK method, such as drum machines and simple sequencers. It is not recommended to use this method for new recordings because of its inferiority to SMPTE time code.

FSK24 sync code is generated in real time as the ASQ10 plays. FSK24 sync code contains tempo information and therefore it is important that the tempo be set to the desired setting BEFORE the sync tone is recorded to tape.

To record the sync tone to tape:

1. Connect the SYNC OUT jack of the ASQ10 to the input of a track on your multi-track tape recorder.
2. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings ==========
Mode:FSK24
Shift sync early(ms): 0



========= Sync output settings =========
Mode:FSK24              Midi clock:OUT4
<GenSMPTE>
```

3. Set the MODE field (Sync output section) to FSK24.
4. Press the MAIN SCREEN key.
5. Compose the basic structure of your song, including the correct tempo and any tempo changes.
6. Once the basic structure is completed, set up all track assignments and set all levels to record the sync tone and the first musical parts to tape. Record the sync tone at -3 dB.
7. Start the tape recorder into record mode and wait about 5 seconds.
8. Press the PLAY START key on the ASQ10 to start recording the sync tone and the first parts of your sequence to tape.
9. Once the sequence is complete, stop the ASQ10 and stop the tape recorder.

To play back the ASQ10 in sync to the tape:

1. Connect the output of the tape track containing the FSK24 signal to the SYNC INPUT of the ASQ10.

2. Set the SYNC INPUT LEVEL control on the rear panel to about halfway.
3. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings ==========
Mode:FSK24
Shift sync early(ms): 0


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

4. Set the MODE field (Sync input section) to FSK24.
5. Press the MAIN SCREEN key.
6. Record the parts to be overdubbed into the ASQ10.
7. Rewind the tape to the point at which you started recording the sync tone.
8. Play the tape. Once the tape reaches the point at which you started playing the ASQ10 while recording the sync tone, the ASQ10 will start playing its new parts in perfect sync. The current tempo setting is not used — tempo is provided from the sync tone on tape. To use FSK24, you must always start the tape from the beginning of the recording as in this example.

NOTE: If the ASQ10 doesn't respond to the sync signal, try adjusting the SYNC INPUT LEVEL control on the rear panel. Find the lowest setting at which the ASQ10 responds, then increase the level by about 1/4 turn.

To play back a "Song" (Song mode) in sync to the FSK24 signal:

To play back a "Song" in sync to the FSK24 signal, follow the above instructions, except select the SONG MODE screen before receiving the FSK24 signal. This way, the active song will play instead of the active sequence.

7.5 Syncing to 1/4 note clicks

This method of syncing uses 1/4 note metronome clicks or any cleanly recorded percussive audio signal as a sync source. Using this method of sync, the playing tempo is provided from the external 1/4 note clicks.

To play the ASQ10 in sync to 1/4 note clicks:

1. Connect the output of the tape track containing the 1/4 note click signal (or other percussive audio source) into the SYNC INPUT.
2. Set the rear panel SYNC IN LEVEL control to 1/2 of its full range.
3. Press the SYNC key and the sync screen will appear:

```
========= Sync input settings ==========
Mode:1/4 CLICKS
Shift sync early(ms): 0
1/4 click sync starts at:CURRENT BAR

========= Sync output settings =========
Mode:FSK24              Midi clock:OUT4
<GenSMPTE>
```

4. Set the MODE field (Sync input section) to 1/4 NOTE CLICKS.
5. If you want the sequence to start at the beginning when the clicks are first received, set the 1/4 CLICKS START AT field to BAR 1. If you set it to CURRENT BAR, the sequence will start playing from the start of the current bar when the clicks are first received.
6. Press the MAIN SCREEN key.
7. Record the parts to be overdubbed into the ASQ10.
8. Rewind the tape to the point at which the 1/4 note clicks start.
9. Set the tempo of the ASQ10 as close as possible to the tempo of the 1/4 note clicks. This setting will be used to provide the initial tempo, after which the subsequent clicks will provide their own tempo.
10. Play the tape. Once the tape reaches the point at which the 1/4 note clicks start, the ASQ10 will instantly start playing in sync.

To play back a "Song" (Song mode) in sync to the 1/4 note click signal:

To play back a "Song" in sync to the 1/4 note click signal, follow the above instructions, except select the SONG MODE screen before receiving the 1/4 note click signal. This way, the active song will play instead of the active sequence.

7.6 Syncing to Midi Clock and Song Position Pointer

Midi Clock is a standard sync signal which is transmitted over Midi. It is not used for tape sync, but rather for syncing drum machines, sequencers and other devices together. Midi Clock only contains tempo information, but no song position information. Song position information is provided by a different signal, Midi Song Position Pointer, which is mixed in with the Midi Clock signal.

To set the ASQ10 to generate Midi Clock and Song Position Pointer:

1. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings ==========
Mode:MIDI CLOCK W/SONG PNTR
Shift sync early(ms): 0  Midi in:2


========= Sync output settings =========
Mode:FSK24                Midi clock:OUT4
<GenSMPTE>
```

2. Move the cursor to the MIDI CLOCK field. This field has five options: OFF, MIDI1, MIDI2, MIDI3, and MIDI4. OFF turns generation of Midi Clock off. The other four options are used to select whether the signal is output from Midi output jacks 1, 2, 3 or 4. Both Midi Clock and Song Position Pointer are generated simultaneously. Set this field so that the desired midi output jack outputs the midi clock signal.

3. Now, whenever the ASQ10 is played, Midi Clock and Song Position Pointer will be output through the Midi output jack you have selected.

To sync from an external device sending Midi Clock with or without Song Position Pointer:

1. Connect the MIDI OUTPUT of the sending device to the MIDI INPUT 2 of the ASQ10. (You may alternatively use input 1 — if so, set the MIDI IN field to 1.)
2. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings =========
Mode:MIDI CLOCK W/SONG PNTR
Shift sync early(ms): 0  Midi in:2


========= Sync output settings =========
Mode:FSK24               Midi clock:OUT4
<GenSMPTE>
```

3. Set the MODE field (Sync input section) to MIDI CLOCK W/SONG POINTER if you want to receive midi clock and song pointer messages. If you want to ignore any incoming song pointer messages, set it to MIDI CLOCK.
4. Set the MIDI INPUT field to 2.
5. Press the MAIN SCREEN key.
6. Create your sequence on the ASQ10.
7. Now, start the external device and the ASQ10 will automatically play in sync. If Song Position Pointer messages are not being used, you must position each device at its start before playing the master.

To play back a "Song" (Song mode) in sync to the Midi Clock:

To play back a "Song" in sync to the Midi Clock signal, follow the above instructions, except select the SONG MODE screen before receiving the Midi Clock signal. This way, the active song will play instead of the active sequence.

7.7 Syncing to Midi Time Code

Midi Time Code is basically SMPTE time code encoded over Midi. Since it is a Midi signal, it cannot be recorded on tape, but it is used rather to sync to devices such as drum machines and sequencers. The ASQ10 does not generate Midi Time Code, but does sync to it when generated from an external source.

To play back a sequence in sync to Midi Time Code:

1. Connect a Midi cable from the output of the device sending the Midi Time Code to the Midi input 2 of the ASQ10. (You may alternatively use input 1 — if so, set the MIDI IN field to 1.)
2. From the PLAY/RECORD screen, select the sequence which you intend to record to tape.
3. Press the TEMPO key and the tempo screen will appear:

```
================ Tempo =================
Tempo Source Select:SEQUENCE
Sequence: 90.9        Master:120.0
============ Display Mode ==============
BPM/FPB:BPM           Frames/Sec:30
=============== Other ==================
Tap Averaging:3
<SyncScreen><TempoChngs>
```

4. Set the TEMPO SOURCE SELECT field to SEQUENCE. This causes the ASQ10 to use the tempo setting stored within the sequence, so that it will always be remembered even if the sequence is saved to disk and later recalled. It is important for the ASQ10 to remember the tempo setting because the Midi Time Code does not provide its own tempo.
5. Set the FRAMES/SEC field to the same frame rate as the Midi Time Code which is going to be received. This will be usually be "30" for the U.S. and Japan, and "25" for Europe and the U.K.
6. Press the SYNC key, and the sync screen will appear:

```
========= Sync input settings ==========
Mode:MIDI TIME CODE
Sequence starts at SMPTE#:00:00:00:00.00
SMPTE accuracy:BEFORE V2.0    Midi in:2

========= Sync output settings =========
Mode:FSK24            Midi clock:OUT4
<GenSMPTE>
```

7. Move the cursor to the upper left field, MODE and select the option MIDI TIME CODE.

8. Move the cursor to the SEQUENCE STARTS AT SMPTE# field and enter the number of the incoming Midi Time Code location you want your sequence to start at. If you don't know, use 00:00:10:00.00. This will cause your sequence to start at a location 10 seconds after the start of the incoming Midi Time Code signal. This will allow you to record some additional parts to that first 10 seconds if you later decide to. This setting only applies to the active sequence, so be sure that the sequence you intend to use is selected before setting this parameter.
9. Press the MAIN SCREEN key.
10. Set all levels to record the ASQ10 to tape.
11. Start the external device generating the Midi Time Code. Once the time code has played for 10 seconds (if the SEQUENCE STARTS AT SMPTE# has been set to 10 seconds), the ASQ10 will automatically start playing from the beginning and will not stop until the sequence has completed. To stop it early, press the STOP key on the ASQ10.
12. To shift the playback earlier or later by any amount, adjust the SEQUENCE STARTS AT SMPTE# field to an earlier or later location.

NOTE: When playing a sequence from bar 1 in response to incoming Midi Time Code, the timing of the first note in bar 1 may be slightly late. To get around this problem, insert a blank bar at the start of the sequence (or song). This will cause the late timing to occur within the initial blank bar, so that the timing is stable well before the notes (starting in the second bar) start playing.

To play back a "Song" (Song mode) in sync to the Midi Time Code signal:

To play back a "Song" in sync to the MIDI TIME CODE signal, follow the above instructions, except select the SONG MODE screen before receiving the SMPTE signal. This way, the active song will play instead of the active sequence. To set the starting SMPTE number for the song, use the SONG STARTS AT SMPTE# field in the Song screen.
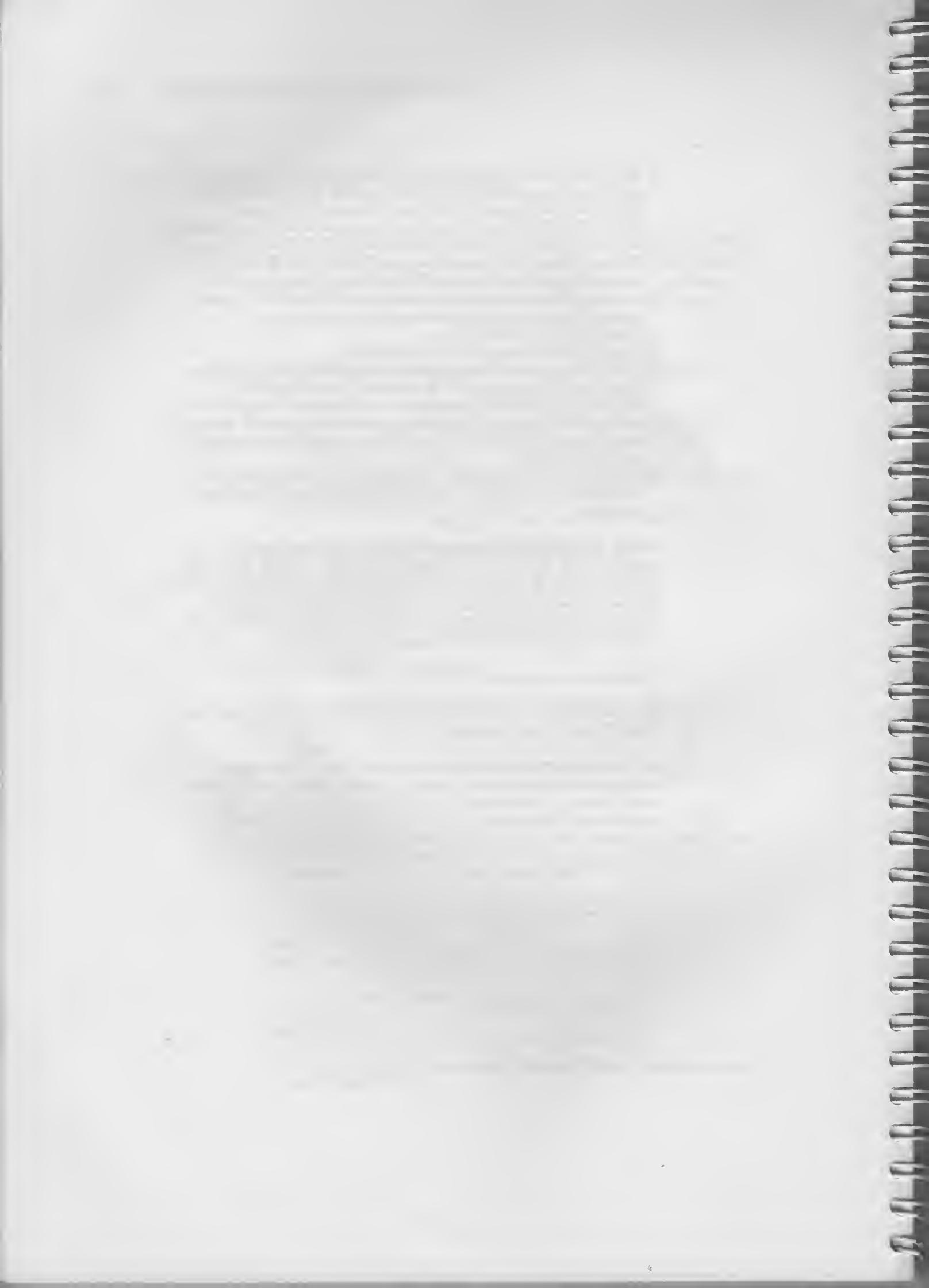
Section 8:
Midi Functions

8.1 Overview

The MIDI key provides access to a number of parameters related to Midi. In this section you will learn to:

- Remove or "thin out" selected event types from the Midi input data
- Remove velocity data from the incoming Midi input data
- Set the MIDI SOFT THROUGH feature
- Select or defeat the ASQ10's special sustain pedal processing
- And more.

8.2 The Midi screen

When the MIDI key is pressed, the following screen appears:

```
============ Midi input filter ==========
Event:C1-MODULATION WHEEL
Pass event?:YES         Minimum change:   5
Velocity mode:NORMAL Fixed velocty#: 86
============== Other midi ==============
Midi soft thru:ON      Default chan:16A
Special sustain pedal processing:ON
<All notes off>
```

This screen has two main sections: MIDI INPUT FILTER and
OTHER MIDI. Each is described in the following sections:

The MIDI INPUT FILTER section:

This portion of the screen allows you to selectively remove parts of
the incoming MIDI data, so as not to take up excess memory
recording them, and to reduce the processing requirements on
playback. The fields are:

• The EVENT and PASS EVENT? fields:
The EVENT field is a choice field and may be set to any one of the
following event types:

        Pitch bend (BEND)
        Program change (PRGM CHNG)
        Channel pressure (CHAN PRES)
        Poly pressure (POLY PRES)
        System Exclusive (SYS EXCL)
        Drum mixer volume (MIXER VOL)
        Drum mixer pan (MIXER PAN)
        Drum tuning (DRUM TUNE)
        Echo mixer volume (ECHO VOL)
        Midi controller 0 (C0-UNDEFINED)
        Midi controller 1 (C1-MODULATION WHEEL)
        Midi controller 2 (C2-BREATH CONT)

        .
        .
        .

        Midi controller 127 (C127-POLY MODE ON)

While one of these event types is selected, the PASS EVENT? field
displays either a YES indicating that event will be recorded into

sequences or a NO indicating that event type will be removed from the midi input data stream when encountered. This status may be changed using the DATA CONTROL.

NOTE: The "MIXER VOL", MIXER PAN", "DRUM TUNE", and "ECHO VOL", events exist only to maintain compatibility with the Akai MPC60 Midi Production Center or any future products which respond to the system exclusive messages generated by these event types. For most purposes, these messages would not be used in the ASQ10.

An example of a good use of this function is to prevent "channel pressure" data (also called "aftertouch") from being recorded into your tracks. If you are using a keyboard which produces channel pressure messages, all of these continuous messages will normally be recorded into the track, whether your synthesizer uses these messages or not. This will cause much extra sequence memory to be used and will cause the sequencer to work much harder to play all of these messages, possibly causing note delays, if the sequence contains many notes. To avoid this, turn off the recording of continuous controller messages unless your synthesizer is using them. To do this, select CHAN PRES in the EVENT field, then select NO in the PASS EVENT? field.

• The MINIMUM CHANGE field:
There is another field called MINIMUM CHANGE which only appears if the EVENT field is set to BEND, CHAN PRES, MIXER VOL, MIXER PAN, ECHO VOL, or controllers 0 through 31. These are all "continuous data" event types, meaning that large numbers of these events are used to simulate a gradual change in the specified parameter. For example, when you move a pitch bend wheel on a keyboard, a large number of pitch bend events are output from the keyboard, and all of them would be recorded into the active track. The problem with recording all of these events is that they use a large amount of memory and they cause the internal computer to work very hard, causing possible timing delays if large amounts of these events exist in a sequence. In many cases, however, many more of these events are output from the keyboard than is necessary to produce the desired effect.

The MINIMUM CHANGE field is used to "thin out" the event data for the above specified event types, thereby reducing the total number of events which will be recorded into tracks. It works by only recording events which have changed more than a specified amount since the last received event of the same type, and the amount is set in the MINIMUM CHANGE field. As with the PASS EVENT? field, the MINIMUM CHANGE field shows the value associated with the event type shown in the EVENT field. For example, to "thin out" incoming channel pressure events:

1. Set the EVENT field to CHAN PRES.
2. Set the PASS EVENT? field to YES.
3. Set the MINIMUM CHANGE field to 5.

This means that an incoming channel pressure message could only be recorded if its value had changed by more than 5 from the last value received. The range of this field is 0 - 127, with 127 being the full range of the controller. (Pitch bend is an exception— even though the pitch bend messages actually have a range of ± 8191, 0 to 127 represents the full range here. For example, to specify that only a change of 10% or more in the total range of the bend wheel may be recorded, enter a 12 here, because 12 is approximately 10% of 127, which here represents the full range of the bend wheel.)

• The VELOCITY MODE and FIXED VELOCITY fields:
Incoming midi note events are normally recorded into the sequence with their velocity values intact, permitting the recording of dynamics. These two fields permit the incoming velocity data to be ignored, if desired, and a fixed value substituted for each incoming note. The VELOCITY MODE field has two options: NORMAL and FIXED. If set to FIXED, all incoming velocity values are replaced by the value specified in the FIXED VELOCITY field (1 - 127).

The OTHER MIDI section:

• The MIDI SOFT THRU field:
If set to ON, any incoming Midi data is routed in real time to the selected track's output Midi channel. If set to OFF, it isn't. If you are using a single keyboard synthesizer (the keyboard and sound generator are together in one unit), this field should be set to OFF. In this case, there is no need for incoming midi notes to be immediately sent out to the synthesizer's sound generator because it is already receiving notes directly from its keyboard. If you are using a midi master keyboard and separate synthesizer modules, set this field to ON. This way, the notes played on the keyboard will play the synthesizer modules in real time.

NOTE: When MIDI THRU is set to ON, be careful to avoid a midi "feedback" loop in your external midi cables and devices. A midi feedback loop occurs when an output midi message, because of some incorrect external midi connection, is immediately sent back to the input, then it is immediately sent back out, then in, then out, etc. If this occurs, the ASQ10 could "freeze" until one of the midi cables is disconnected. To avoid this, be very careful in connecting your external midi cables and devices to prevent a direct signal path from the ASQ10's midi output to its midi input.

• The DEFAULT CHAN field:
Each track within a sequence must be assigned to one of the 64 midi channels. If none is selected, a default channel is automatically inserted by the ASQ10. This field determines which channel is automatically inserted when a new track is selected. This is actually two fields: the channel number (1 - 16), and the output jack selection (A, B, C, or D).

• The SPECIAL SUSTAIN PEDAL PROCESSING field:
This is a choice field with 2 options: ON and OFF. The purpose of this field is to selectively defeat the ASQ10's special processing of sustain pedal messages, explained below.

In all other sequencers, sustain pedal messages (midi controller 64) are recorded as received into the sequence along with the notes. This presents the following problems:

1. If you start playing a sequence from a specific point at which the sustain pedal is held, but which is after the point at which it was pressed, the notes will not be sustained because the "sustain on" message has not been recognized.
2. If you delete or erase a section of the sequence which contained a "sustain pedal off" message, all notes after that location will be sustained.
3. If you play 2 or more tracks into the same midi output channel and only one track has sustain pedal information, the notes on the other tracks will also be sustained.
4. If you merge a track with sustain pedal information into a track without sustain pedal information, all notes on the resultant track will be sustained.
5. If you overdub notes into a track containing sustain pedal information, the new notes will be sustained.

The ASQ10 eliminates these problems by specially processing the sustain pedal messages. When the ASQ10 receives a "sustain pedal on" message during record, it does NOT record it. Instead, any notes which are currently pressed are internally "held down", even after they are released, until a "sustain pedal off" message is received. The result is that the individual durations of notes are lengthened, so unwanted transferring of sustain information to other notes on the same midi channel is impossible. This has the added advantage of allowing you to individually adjust durations of sustained notes in Step Edit.

There are some situations in which this special feature is undesirable:

1. On some synthesizers, this special sustain method will cause the synthesizer to ignore any new notes played after

all available voices are used, because the synthesizer "thinks" the keys are still held.

2. Some synthesizers have the ability to use midi controller 64 for other purposes than sustain, so it is desirable to record it into the sequence.

For these reasons, the ASQ10's special sustain processing may be defeated. To defeat this special feature and record midi sustain messages (controller 64) into sequences, set the SPECIAL SUSTAIN PEDAL PROCESSING field to OFF. Normally, keep this field set to ON.

• SOFT KEY 1 — <All notes off>:

Pressing this soft key causes a midi "All notes off" command to be sent out on all channels, forcing any notes currently playing to be immediately turned off. Sometimes, because of slight midi incompatibilities between instruments, a note may erroneously stay on. Selecting this option should cause any notes which are on to be turned off.

8.3 The Midi implementation chart

This section contains the Midi implementation chart for the ASQ10.
This chart is useful to determine if any incompatibilities exist
between the ASQ10 and your other Midi instruments.

Model: ASQ10 Midi Sequencer   Midi Implementation Chart   Version: 2.0

Function		Transmitted	Recognized	Remarks
Basic	Default	1-16	1-16	
Channel	Channel	1-16	1-16	
	Default	3	1	
Mode	Messages	×	×	
	Altered	×	×	
Note		0-127	0-127	
Number	True Voice	0-127	0-127	
Velocity	Note ON	O	O	
	Note OFF	O	O	
After	Key's	O	O	
Touch	Ch's	O	O	
Pitch Bender		O	O	
Control	0-127	O	O	Hihat decay=20
Change				See note 1
Prog		O	O	
Change	True#	0-127	0-127	
System Exclusive		O	O	See note 2
System	:Song Pos	O	O	
	:Song Sel	×	O	
Common	:Tune	×	×	
System	:Clock	O	O	
Real Time	:Commands	O	O	
Aux	:Local ON/OFF	×	×	
Mes-	:All Notes Off	O	×	
sages	:Active Sense	×	×	
	:Reset	×	×	

Mode 1: OMNI ON, POLY   Mode 2: OMNI ON, MONO   O : Yes
Mode 3: OMNI OFF, POLY   Mode 4: OMNI OFF, MONO   × : No

Note 1:
When the control code 64 (damper or sustain pedal) is received while recording, it is not
recorded. Instead, all keys held down at that time are held on until the sustain pedal is

released, even if the individual keys are released. This allows multiple overdubs on the same track to have different and independent sustain pedal times.

Note 2:
The following system exclusive messages are sent and received to maintain compatibility with the MPC60 Midi Production Center:

Drum mixer volume change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H, ASQ10=46H)
00000001	Parameter ID: 01 = Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Data: 0 (off) - 127 (full volume)

Drum mixer pan change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H, ASQ10=46H)
00000010	Parameter ID: 02 = Drum mix pan
000XXXXX	Drum number (0-31)
0000XXXX	Data: 0 (full left) - 14 (full right)

Echo mixer volume change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H, ASQ10=46H)
00000011	Parameter ID: 03 = Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Data: 0 (off) - 127 (full volume)

Drum tuning change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H, ASQ10=46H)
00000100	Parameter ID: 04= Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Pitch data MSB
0XXXXXXX	Pitch data LSB
	The above two bytes comprise a 14 bit pitch change word. Range = 0 - 4000H in increments of 1/2 cent (2000H = no change).

Section 9:
Features related
to drums—
the DRUMS key

9.1 Overview

This key provides a number of features which make it easier to record tracks containing drums. These features also provide the capability to create files which are compatible with the drum-related features of the Akai MPC60 Midi Production Center, which is basically the same product as the ASQ10, but with a built-in drum sampler.

Problems with recording drums as keyboard notes:

Normally, in order to record drum parts into a sequencer, you simply assign the various drums to individual midi note numbers, or keys on the midi keyboard For example, C1 could be a bass drum; D1 could be a snare drum, etc. These assignments are determined by the drum sound generator, which could be an external drum machine or drum sampler. Although you can use this method on the ASQ10, it is sometimes difficult to remember which note is assigned to which drum. For example:

> • When using the ERASE function, if you want to erase a bass drum note, you must remember which note the bass drum is assigned to, and select only that note for erasure.

> • When using the STEP EDIT function, if you want to edit a snare drum note, you must remember which note the snare drum is assigned to, then edit that note.

In addition, there are other problems:

> • You cannot change the note-to-drum assignments once the drum sequence has been recorded. For example, if you record a drum sequence using one drum sound generator, then later play it through a different drum sound generator, the note-to-drum assignments may be wrong— and if the unit can't change its assignments, you must re-record the sequence.

> • When using the TRANSPOSE function, if you transpose all tracks of a sequence, this will cause all of the note-to-drum assignments to change, because transposing changes the notes in the track. For example, a bass drum track will instead play a snare drum.

> • Since the ERASE function may only select a range of keyboard notes to erase, it is very cumbersome to erase a selected list of drums.

How the ASQ10 records drums:

The ASQ10 solves all of the above problems by treating drum tracks differently than tracks containing standard midi note data. Each of the 99 tracks within a given sequence may individually be assigned to act as either a "drums" track or a "non-drums" track, but not both simultaneously. When a track is assigned as a "drums" track, these special advantages are provided:

> • When using the ERASE function, you can enter a list of names of drums you wish to erase, instead of a range of keyboard keys.

> • When using the STEP EDIT function, drum notes are identified by the name of the drum, instead of the note which the drum is assigned to.

> • When recording drum tracks from a midi keyboard, you may assign which note plays which drum. Independently, you may also assign which drum plays which midi note number, even after a drum track has been recorded.

> • When transposing a sequence, all tracks are transposed except "drums" tracks, so that the drum-to-note assignments are not changed.

> These differences are described in detail in section 9.7 "Features which treat "drums" tracks differently".

Basically, whereas a normal keyboard track contains a sequence of the 127 midi keyboard notes, a "drums" track contains a sequence of 32 different drums, having the following names:

> Hihat, Snare 1, Snare 2, Bass, Tom 1, Tom 2, Tom 3, Tom 4, Ride 1, Ride 2, Crash 1, Crash 2, Percussion 1, Percussion 2, Percussion 3, Percussion 4, Drum 1, Drum 2, Drum 3, Drum 4, Drum 5, Drum 6, Drum 7, Drum 8, Drum 9, Drum 10, Drum 11, Drum 12, Drum 13, Drum 14, Drum 15, and Drum 16.

When a function is used which displays one or more of these drums on the screen, a 4 letter abbreviation is used instead of the full name. The abbreviations are:

> HIHT, SNR1, SNR2, BASS, TOM1, TOM2, TOM3, TOM4, RID1, RID2, CRS1, CRS2, PRC1, PRC2, PRC3, PRC4, DR01, DR02, DR03, DR04, DR05, DR06, DR07, DR08, DR09, DR10, DR11, DR12, DR13, DR14, DR15, and DR16.

There is one exception: all HIHAT note events contain special "decay time" data, used to indicate the "openness" of a hihat pedal.

This is explained in "The CONTROLLER NUMBER FOR HIHAT DECAY field" in section 9.3.

Compatibility with the MPC60:

In addition to making it easier to record and edit drum tracks, some of these drums-related features are provided to maintain compatibility with the MPC60. These features include the STEREO DRUM MIXER, the DRUM TUNING screen, and the ECHO SEND MIXER. By using these features while an external MPC60 is connected by midi, you will be able to control the external MPC60's stereo mix, drum tunings and echo send mix. Further, by using STEP EDIT, you can insert mid-sequence changes in the stereo mix, tunings, and echo mix settings. Finally, because these features allow you to edit every MPC60 sequence parameter, ASQ10 disk sequence files are 100% compatible with the MPC60, and vice-versa.

To access these drum-related features, press the DRUMS key, and the following screen will appear:

```
================= Drums =================
1)Assign notes to drums, assign the
  midi drums channel
2)Stereo drum mixer
3)Drum tunings
4)Drum echo send mixer

Select option:
```

Each of the 4 options is described in detail later in this section, but first we'll learn how to assign a track as either "drums", or standard "non-drums".

9.2 How to assign "drums" and "non-drums" tracks

To set up the ASQ10 to be able to use these special drums-related features, you must first select one of the midi channels to be used as the "drums" channel. To do this:

1. Press the DRUMS key, then select option 1, and the following screen will appear:

```
==== Assign Incoming Notes To Drums ====
Incoming Note: 34      Plays:SNR1
==== Assign Outgoing Drums to Note#s ===
Outgoing Drum:SNR1    Plays Note:34
================ Other =================
Midi channel assigned to drums:16
Send out mix/tune changes over midi:NO
Controller number for hihat decay:20
```

2. Move the cursor to the MIDI CHANNEL ASSIGNED TO DRUMS field and select 16. You may select any of the 16 midi channels to be the drums channel, but we suggest number 16 as the drums channel for the ASQ10 and MPC60, to establish a standard. Once set, this field will not change until again changed, even after the power is removed, because this setting is retained in memory by a battery.

3. You must now set the midi note number assignments of the 32 drums to the same assignments used in your drum machine or sampler. They are already preset to a range of notes encompassing the left half of a standard 5 octave keyboard. This is described in detail in the section 9.3.

After you have performed the above steps, follow these simple rules to assign a track as either a "drums" or "non-drums" track:

• To assign a track to be a "drums" track:
Assuming the MIDI CHANNEL ASSIGNED TO DRUMS field is set to 16, set the track's midi output channel number also to 16 (A, B, C, or D). This is set in the CH field, in the PLAY/RECORD screen. Once a track has been recorded as a "drums" track, DO NOT change its midi output channel assignment from 16, unless you have erased all the notes in the track first.

• To assign a track as a "non-drums" track:
Assuming the MIDI CHANNEL ASSIGNED TO DRUMS field is set to 16, set the track's output midi channel to any channel other than 16 (A, B, C, or D). This is set in the CH field, in the PLAY/RECORD screen. Once a track has been recorded as a "non-drums" track, DO

NOT change its midi output channel assignment to 16 (A, B, C, or D), unless you have erased all the notes in the track first.

A more technical explanation:

In a "non-drums" track, incoming midi note numbers are stored in the sequence exactly as they are received. However, in a "drums" track, incoming midi note numbers are converted by the "Assign incoming notes to drums" function to numbers 0 through 31, representing the 32 drums, and stored in the sequence as those 32 midi note numbers. When the sequence is played back, these note numbers (0 - 31) are converted to selected midi note numbers within the keyboard range by the ASSIGN OUTGOING DRUMS TO NOTES function and output in that form. This method has the advantage of being able to change the assignments of keyboard note numbers to drums at any time without affecting the sequence data. (These two assignment functions are described in further detail in section 9.3.)

THE ONLY FACTOR WHICH DETERMINES WHETHER A TRACK IS A "DRUMS" OR "NON-DRUMS" TRACK, AND THEREFORE WHETHER OR NOT THESE CONVERSIONS ARE DONE IS THE TRACK'S OUTPUT MIDI CHANNEL ASSIGNMENT — IF IT IS ASSIGNED TO THE SAME CHANNEL AS THE "MIDI CHANNEL ASSIGNED TO DRUMS" FIELD (NORMALLY 16), IT IS A "DRUMS" TRACK; IF IT IS NOT ASSIGNED TO THE SAME CHANNEL, IT IS A "NON-DRUMS" TRACK.

Because the aforementioned note number conversions are only performed on "drums" tracks, it is important that you DO NOT do the following:

> • DO NOT record a drums track , then change its midi channel assignment to a channel other than 16. Otherwise, when the sequence is played, midi note numbers 0 - 31 will play instead of the correctly assigned note numbers.

> • DO NOT record a non-drums track, then change its midi channel assignment to 16. Otherwise, when the sequence is played, keyboard note numbers below 32 will be translated to the assigned drum note numbers, and notes above 31 will not play at all.

9.3 Assigning note numbers to drums, assigning the "Drums" midi channel

To adjust these settings, select option 1 from the DRUMS menu:

```
==== Assign incoming notes to drums ====
Incoming notes play drums:ON
Note: 66(F#3 )      Plays:SNR1
==== Assign outgoing drums to notes ====
Drum data sent out:NOTES/MIX/TUNE
Drum:SNR1           Plays note: 66(F#3 )
================= Other =================
Midi drums chan:16
```

This screen has three main sections:

The ASSIGN INCOMING NOTES TO DRUMS section:

This section of the screen is used to assign each of the keys on the incoming keyboard to one of the 32 internal drums. To view or change an assignment, select the desired incoming midi note in the NOTE field, then view or change its drum assignment in the PLAYS field. The default assignment for all incoming notes is NONE, except:

36 = BASS	37 = SNR2	38 = SNR1	39 = SNR2
40 = SNR1	41 = TOM4	42 = HIHT	43 = TOM4
44 = HIHT	45 = TOM3	46 = HIHT	47 = TOM2
48 = TOM1	49 = CRS1	50 = TOM1	51 = CRS2
52 = PRC1	53 = PRC2	54 = RID1	55 = PRC3
56 = RID2	57 = PRC4	60= DR01	61= DR02
62= DR03	63= DR04	64= DR05	65= DR06
66= DR07	67= DR08	68= DR09	69= DR10
70= DR11	71= DR12	72= DR13	73= DR14
74= DR15	75= DR16		

The ASSIGN OUTGOING DRUMS TO NOTES section:

This section encompasses three fields. The uppermost field, MIDI DRUM DATA SENT OUT is used to determine what midi data is sent out when the internal drums play. It is a choice field with two options:

1. DRUM NOTES: If this option is selected, a midi note command is sent out whenever one of the internal drums

plays. This should be used if an external drum generator is being triggered by the ASQ10. This is the default setting.

2. NOTES/MIX/TUNE: If this option is selected, a midi note command is sent out whenever one of the internal drums plays, and also a special system exclusive command is sent out whenever a change in the stereo mix, echo mix, or tuning occurs. At time of writing, no products respond to these system exclusive messages from the ASQ10 (other than another MPC60).

The two remaining fields in this section are together used to determine which midi note numbers are sent out when each of the 32 drums plays in sequences. To view or change the assignments, select the desired drum in the DRUM field, then view or change its output note number assignment in the PLAYS NOTE field. The default settings are the same as for the ASSIGN INCOMING NOTES TO DRUMS section, except in reverse.

The "OTHER" section:

This section has two fields:

• The MIDI CHANNEL ASSIGNED TO DRUMS field:
This field selects which of the 16 midi channels is assigned to drums. This is very important because THE ONLY WAY OF DETERMINING WHETHER A TRACK IS A "DRUMS" TRACK OR A "NON-DRUMS" TRACK IS WHETHER OR NOT THE TRACK'S MIDI CHANNEL MATCHES THE NUMBER IN THIS FIELD! For further information on this subject, read the section entitled "How to assign "drums" and "non-drums" tracks" (section 9.2). We recommend using channel 16 as the "standard" drums channel. If you don't wish to assign any of the 16 midi channels to drums, using all 16 in the standard "non-drums" configuration, enter a "0" here.

• The CONTROLLER NUMBER FOR HIHAT DECAY field:
Of the 32 drums, the hihat is special in that each hihat note contains a "decay time" value, intended to control the "openness" of the hihat pedal. This value may be set or changed in the DCY field of HIHT events in the STEP EDIT screen.

To record hihat decay data into your drum tracks, use any midi continuous controller such as a midi continuous controller foot pedal or the modulation wheel on your keyboard, then set the number in this field to the number of

the midi controller you are using. For example, to control the
hihat decay from a keyboard modulation wheel, set it to 1; to
control the decay from a midi keyboard's foot controller, set
it to 4. Whenever the keyboard key assigned to the hihat is
played while recording, the current value of the midi
controller you are using for hihat decay is stored with the
hihat note event. After recording, you may change the decay
value of each hihat note in the STEP EDIT screen by
adjusting the DCY field of HIHT events.

Whenever a hihat note plays back in a sequence, the decay
value of that note is sent out over the midi controller number
which is set in this field. To hear the decay effect, you must
use a sound generator which allows you to control the decay
time of the hihat sound by a midi controller, and more
specifically the same controller number as that which
appears in this field.

9.4 The stereo drum mixer

This feature currently exists only to maintain compatibility with the Akai MPC60 Midi Production Center. The MPC60 has a 32 input stereo drum mixer, and the settings of this mixer are stored within "SEQ" disk files. Currently, this feature will have no use unless an MPC60 is connected through midi, or if you want to be able to adjust the stereo mix on MPC60 disk files while using the ASQ10. However, since these changes are sent out over midi, future products from Akai or others may respond to these signals, allowing total control over drum parameters from the ASQ10.

Each of the 99 sequences has its own stereo mix settings which will be stored along with the sequence when it is saved to disk. To adjust the settings for the active sequence, select option 2 from the DRUMS screen, and the following screen will appear:

```
 ⊘  ⊘  ⊘  ⊘  ⊖  ⊘  ⊙  ⊙  ⊘  ⊖  ⊖  ⊖  ⊖  ⊖  ⊖  ⊙
 H  S  S  B  T  T  T  T  R  R  C  C  P  P  P  P
 I  N  N  A  O  O  O  O  I  I  R  R  R  R  R  R
 H  R  R  S  M  M  M  M  D  D  S  S  C  C  C  C
 T  1  2  S  1  2  3  4  1  2  1  2  1  2  3  4
```
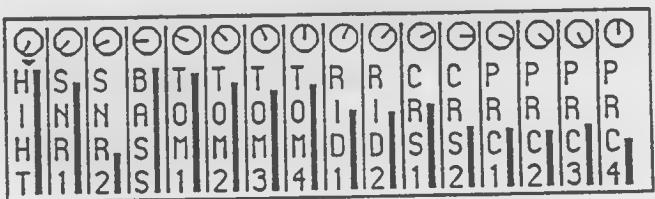
This is a simulation of a 16 channel stereo mixer. For each channel, there is a four letter abbreviation of a drum, a graphic representation of a volume slider, and a graphic representation of a rotary pan control.

To adjust the volume of a particular drum:

1. Move the cursor to the desired drum by using the CURSOR LEFT or CURSOR RIGHT arrow keys;
2. Rotate the DATA CONTROL. As you turn it, the graphic volume slider will move up or down, indicating that the volume of the selected drum is being changed.

To adjust the pan position of a particular drum:

1. Move the cursor to the desired drum by using the CURSOR LEFT or CURSOR RIGHT arrow keys;
2. Press the CURSOR UP key — the small triangle will now point upwards, toward the graphic pan knob;
3. Rotate the DATA CONTROL. As you turn it, the graphic pan knob will move between one of 15 pan positions, indicating that the pan of the selected drum is being changed.

Even though no soft keys are displayed, there are two active soft keys:

1. If SOFT KEY 1 is pressed, the mixer changes to a mode in which all drums are changed simultaneously, indicated by 16 cursor triangles across the screen. To return to normal operation, press SOFT KEY 1 again.
2. If SOFT KEY 2 is pressed, the second bank of drums is displayed for adjustment (DRUM 1 - DRUM16). To re-display the first 16 drums (HIHAT - PERC4), press SOFT KEY 2 again.

9.5 The drum tunings

This feature currently exists only to maintain compatibility with the Akai MPC60 Midi Production Center. The MPC60 has 32 drums, each of which may be tuned, and the tuning settings are stored within "SEQ" disk files. Currently, this feature will have no use unless an MPC60 is connected through midi, or if you want to be able to adjust the drum tunings on MPC60 disk files while using the ASQ10. However, since these changes are sent out over midi, future products from Akai or others may respond to these signals, allowing total control over drum parameters from the ASQ10.

Each of the 99 sequences has its own drum tuning settings which will be stored along with the sequence when it is saved to disk. To adjust the settings for the active sequence, select option 3 from the DRUMS menu, and the following screen will appear:

```
============== Tune Drums ===============
PRC1:+   0 PRC2:+   0 PRC3:+   0 PRC4:+   0
RID1:+   0 RID2:+   0 CRS1:+   0 CRS2:+   0
TOM1:+   0 TOM2:+   0 TOM3:+   0 TOM4:+   0
HIHT:+   0 SNR1:+   0 SNR2:+   0 BASS:+   0


=========================================
<All=0> <Bank select>
```

This screen is used to adjust the tuning of any of the 32 drums. The range is from "-120" (one octave down) to "+60" (one half octave up), adjustable in increments of .1 semitone. No tuning change is indicated by +0. A description of each of the screen fields and soft keys follows:

• The PRC1 through BASS fields:
These are the current tuning settings for the first 16 drums. To change the tuning, move the cursor to the desired drum field and change the setting using the DATA CONTROL or NUMERIC KEYPAD. To change from + to -, turn the DATA CONTROL to the left until negative numbers appear; to change from - to +, turn the DATA CONTROL to the right until positive numbers appear.

• SOFT KEY 1 — <All=0>:
Pressing this soft key resets all tunings to 0.

• SOFT KEY 2 — <Bank select>:
Pressing this soft key causes the second bank of 16 drums (DRUM01 - DRUM16) to be displayed for adjustment. Pressing it again re-displays the first 16 drums (HIHAT - PERC4).

9.6 The Echo Mixer

This feature currently exists only to maintain compatibility with the Akai MPC60 Midi Production Center. The MPC60 has a 32 input mono drum echo send mixer, and the settings of this mixer are stored within "SEQ" disk files. Currently, this feature will have no use unless an MPC60 is connected through midi, or if you want to be able to adjust the echo mix on MPC60 disk files while using the ASQ10. However, since these changes are sent out over midi, future products from Akai or others may respond to these signals, allowing total control over drum parameters from the ASQ10.

Each of the 99 sequences has its own echo mixer settings which will be stored along with the sequence when it is saved to disk. To adjust the settings for the active sequence, select option 4 from the DRUMS key, and the following screen will be displayed:

```
=============== Echo Mixer ===============
H  S  S  B  T  T  T  T  R  R  C  C  P  P  P  P
I  N  N  A  O  O  O  O  I  I  R  R  R  R  R  R
H  R  R  S  M  M  M  M  D  D  S  S  C  C  C  C
T  1  2  S  1  2  3  4  1  2  1  2  1  2  3  4
```

Changing the echo mixer setting is done in the same way as with the main stereo mixer, except without the pans - move the cursor to the desired drum and turn the DATA CONTROL. As with the stereo mixer, if SOFT KEY 1 is pressed, the mixer changes to a mode in which the settings for all drums are changed simultaneously. Also, pressing SOFT KEY 2 causes the second bank of 16 drums (DRUM01 - DRUM16) to be displayed, and pressing it again returns to the first 16 drums (HIHAT - PERC4).

9.7 Features which treat "Drums" tracks differently

As explained earlier, there are some functions in the ASQ10 which treat a "drums" track differently than a "non-drums" track, to make it easier to record and edit drums tracks. The following is a list of the major differences.

The ERASE function:

When the ERASE key is pressed while stopped and the active track is a "drums" track, the following screen is displayed instead of the standard erase screen:

```
================= Erase ================
Track(0=all): 1
From:001.01.00        To:001.01.00
============== Erase filter =============
Erase:ONLY ERASE C1-MODULATION WHEEL
======= Press drums to be erased =======

<Erase it><All bars><All drums>
```

The top half of the screen and soft keys 1, 2 and 4 are the same as in the standard erase screen, but instead of specifying a range of notes to be erased, the lower half of the screen says "Press drums to be erased". When this screen shows, press the keyboard keys of the drums you want to erase, and the four letter names of those drums will immediately appear in the lower half of the screen, indicating the drums which will be erased when the <Erase it> soft key is pressed.

The other difference is in SOFT KEY 3. Pressing this soft key displays the names of all 32 drums (or as many as will fit) in the "Press drums to be erased" area of the screen, indicating that all 32 drums are to be erased when <Erase it> is pressed.

The STEP EDIT function:

When the STEP EDIT key is pressed while the active track is a "drums" track, all existing notes in the sequence are displayed in a "drums" format :

```
=============== Step Edit ================
>01-Note> BASS Vel:123 Tun:   0 Dur:   10
>01-Note> SNR1 Vel:106 Tun:   0 Dur:   17
>01-Note> HIHT Vel:067 Dcy:012 Dur:   23
>01-Note> CRS1 Vel:097 Tun:   0 Dur:   16
>-(no more events at this location)
===== Now:001.01.00 (00:00:00:00) ======
<Insert> <Delete> <PlayEvent> <Options>
```

These "drum" notes differ from normal keyboard notes in four ways:

1. Instead of showing the pitch of the note, the 4 letter drum name is shown.

2. The release velocity is not shown.

3. An additional field, TUN, appears. This controls the tuning of this note only. Currently, this exists only to maintain compatibility with the Akai MPC60 Midi Production Center. However, special "drum tuning" system exclusive messages are sent out when each drum plays, for compatibility with future devices which may respond to these messages. This value is added to the tuning value for each drum in the TUNE DRUMS screen. Note: hihat events do not contain a TUN field.

4. The HIHAT drum is a special case. It has an additional field, DCY, meaning "Decay time", indicating the decay time of the hihat note. Settings of this parameter will have no effect unless the drum sound generator is an MPC60 or a sound generator which allows the hihat decay time to be controlled by a midi controller. When the sequence is played, this "hihat decay" setting is sent out on midi controller 20 at the same instant the hihat note is sent out. However, the controller number for hihat decay may be changed in the CONTROLLER NUMBER FOR HIHAT DECAY field in the MIDI screen. This is explained in greater detail in section 9.3.

The TRANSPOSE function:

If the TRACK field in the transpose screen is set to "0", all tracks will be transposed except "drums" tracks. If not for this exception, transposing the drum track would change its note-to-drum assignments.
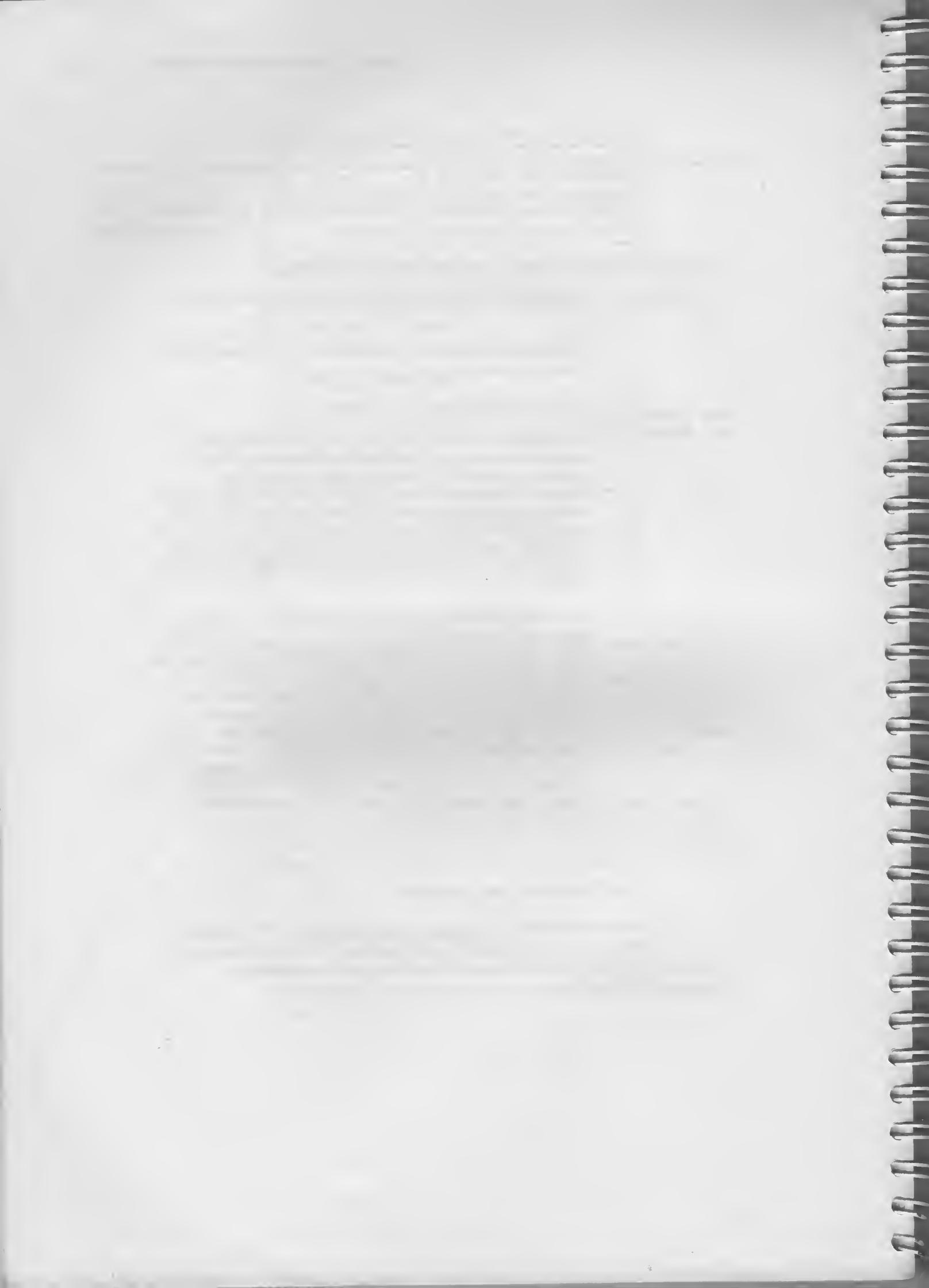
SECTION 10: APPENDEX

10.1 Features

Here is a list of some of the advanced features of the ASQ10:

• Both linear and pattern style (song mode) recording are supported.
• Both "drum machine" style features and sequencer-oriented features are integrated into one universal, easy to use operating system.
• 60,000 note sequencer capacity
• 99 sequences may be held in memory at once. Each sequence contains 99 individual tracks, each of which may be output to any one or two midi channels.
• The "2nd Sequence" feature allows two sequences to play simultaneously. For example, you play a short, looped drum sequence while simultaneously recording your long multi-track keyboard sequence.
• 4 independent midi output ports permit 64 output midi channels.
• 7 sync modes, including SMPTE, Midi Time Code, midi clock, midi song pointer, FSK, pulse wave, and sync to 1/4 note metronome clicks.
• SMPTE chase operates without any delays.
• 2 record modes: "Record" (erasing while recording) and "Overdub" (add notes to existing track) may be switched between at any time.
• Sequences may be looped, and recording is possible with real-time timing correction while loop is on. Also, a sequence may be set to loop back to any bar once the end is reached, not just the beginning of the sequence.
• "Step edit" feature allows very fast viewing, recording, editing or deletion of any event within a sequence.
• Versatile editing system allows copying, merging, inserting, deleting of any sequence data.
• Each track has an output level adjustment, allowing the output velocities to be scaled in real time while playing.
• The velocity or duration values of a group of notes within a track may now be changed globally.
• All 16 midi channels may be recorded simultaneously, allowing sequences to be transferred into the ASQ10 in one pass.
• Sequence data may be "shifted" forward or backward in time.
• "Edit loop" feature allows a portion of a sequence to be looped while overdubbing for fast editing, and allows changes to be "undone".
• Sequences may be transposed, either in real time while playing or by altering note data.
• "Tap tempo" key allows playing tempo to be set by tapping a key in the time of 2 1/4 notes.
• Programmable tempo changes, in mid-sequence or mid-song, are supported.

• Time signature changes, in mid-sequence or mid-song, are supported.

• "Auto punch" feature allows automatic punch-in and punch-out at preset times within the sequence.

• 2 foot switch inputs allow functions such as PLAY/STOP and PUNCH IN/OUT to be remotely controlled.

• Current position within sequence is always displayed in both bar.beat.clock and SMPTE position.

• 2 mergeable midi inputs.

• Timing correction feature maintains original note duration, providing faithful reproduction of original performance, but without timing errors.

• "Shuffle" feature provides a useful method of adjusting the "feel" of the timing of your tracks.

• Timing correction only affects notes- pitch bend and other controllers are recorded as played.

• "Note repeat" feature allows for easy programming of rolls and repeated notes.

• Midi "sustain pedal" messages are specially processed so that multiple overdubs on the same track of a sequence may have independent uses of the sustain pedal without interaction.

• A specific Midi PROGRAM CHANGE event may be assigned to any track, and is automatically sent out when the sequence is selected.

• System exclusive messages, including patch data dumps, may be recorded into sequences.

• Includes all drum-related recording and editing features of the Akai MPC60 Midi Production Center.

• Large 320 character LCD display (8 lines by 40 characters) with graphics.

• Built-in 3 1/2" disk drive.

• Fast, easy to understand operation provided by large screen and logical, intuitive design.

• Interactive "Help" function provides a full paragraph of explanation for each data field of every function screen.

• 4 "Soft keys" provide one button execution of many functions without additional dedicated buttons.

• The contents of all data fields and other settings are retained while the power is turned off, so there is no need to re-set commonly used parameters each time the power is turned on.

• Large memory capacity - 512K bytes RAM, 256K bytes ROM.

• Very fast internal 10 MHz 80186 16 bit computer.

• Small, portable design - fits easily under your arm.

10.2 Technical specifications

General:

- 320 character LCD display with graphics
- Disk drive: 3.5 inch 2DD (793K bytes formatted capacity)
- Computer: 80186 (10 MHz)

Sequencer:

- Note capacity (not event capacity): 60,000 (512K bytes)
- Timing resolution: 96 divisions per 1/4 note
- Maximum number of sequences in memory: 99
- Number of simultaneous tracks per sequence: 99
- Output midi channels: 64
- Song mode: 20 songs, 256 steps per song
- Sync modes: SMPTE, Midi Time Code, Midi Clock, Midi Song Position Pointer, FSK24, Pulse, 1/4 note clicks

Rear panel inputs/outputs:

- Sync input (dual function — also trigger input, balanced): 1
- Sync input level control: 1
- Sync input level: 0.5V p-p ~ 1V p-p
- Sync output: 1
- Sync output level: 1Vp-p, Imp. 220Ω

- Metro output (clocks): 1
- MIDI inputs: 2
- MIDI outputs: 4 (fully independent and simultaneous)
- Foot switch inputs: 2 (independent assignable)
- RS-232C computer port: 1

Note: For improvement purposes, specifications and design are subject to change without notice.

10.3 What to do if your ASQ10 isn't working properly

If you discover a problem in your ASQ10, please follow these steps:

1. Unless the problem is major and obvious, please read the section of the manual related to that function THOROUGHLY AND SLOWLY. The ASQ10 is a very complex product, and sometimes it's possible to think that something is not working correctly if you don't fully understand how it is supposed to operate.

2. If after reading the manual you're still convinced that your ASQ10 has a problem, please write down as many details as you can about the problem, then call your dealer, service center, or your Akai distributor, and read this information to them. They will try to solve your problem over the phone. If they can't, they'll give you instructions on how to get your unit repaired.

Software "bugs"

The problem could be caused by a software "bug" — a design fault in the internal computer's operating program, which will occur on any ASQ10 if the exact same procedure is followed. Although we have tested the ASQ10's software extremely thoroughly before release, there are literally thousands of ways to use the machine, and therefore a "bug" could have gone undiscovered. Further, because of the high complexity of the ASQ10, some of these bugs can be extremely difficult to duplicate, and our software engineers must be able to first duplicate the problem before they can correct it. For this reason, it is very important for us to know exactly what steps you performed which caused the problem to occur. So, if your problem appears to be a software bug, we would very much appreciate it if you would attempt to find the exact series of steps necessary to repeat the problem. If you can't repeat it, it would still help us greatly if you can write down exactly what you did which caused the problem to occur, in as much detail as you can remember, then send these notes to your local Akai distributor.

We will periodically release software updates to correct any software bugs which were found and to add new features. These software updates require only a simple installation in your machine. To find out if your machine contains the latest software update, contact your dealer or service center.

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